NIGHTCAP ON MINJUNGBAL
TRAFFIC IMPACT ASSESSMENT

FOR

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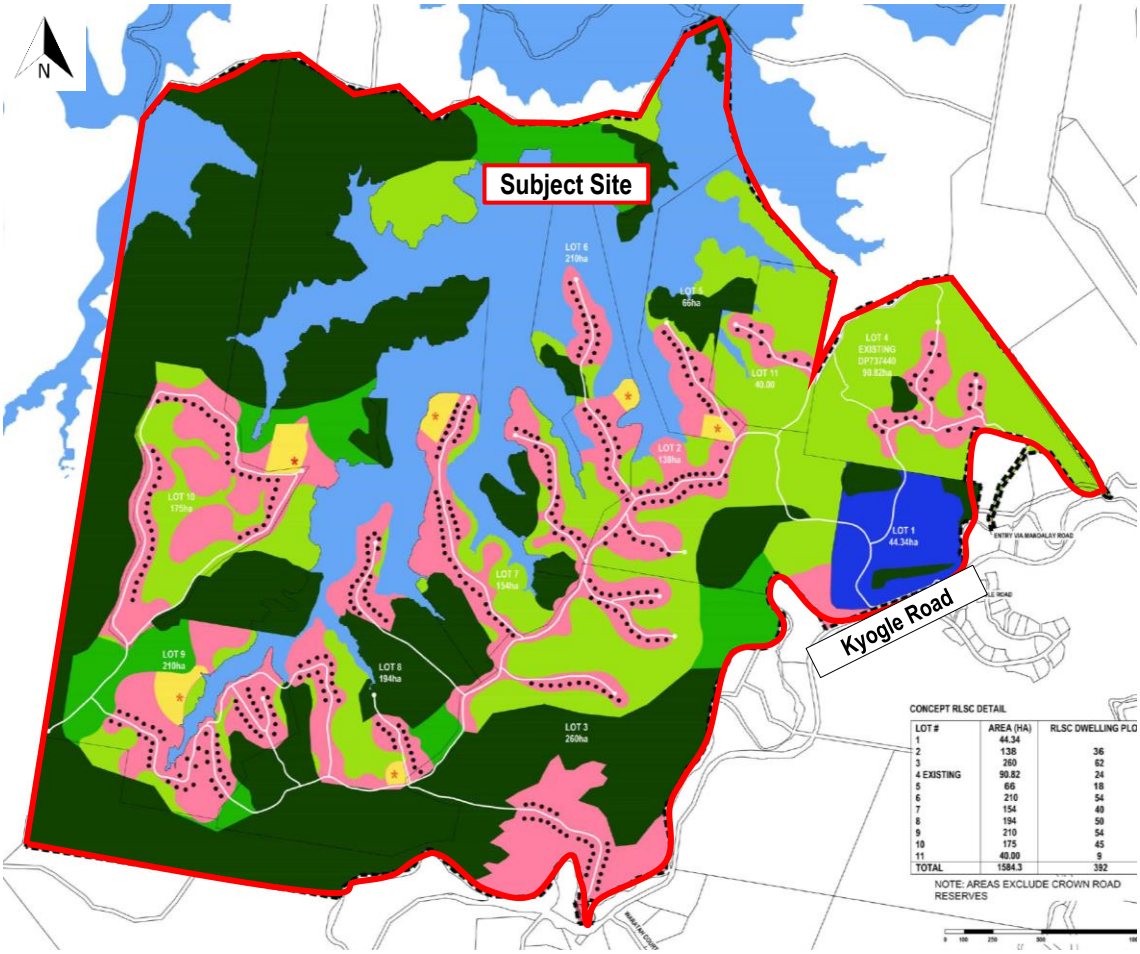
1. INTRODUCTION

1.1 BACKGROUND

Bitzios Consulting (Bitzios) was engaged by NCV Enterprises Pty Ltd to prepare a Traffic Impact Assessment (TIA) for the proposed Rural Landsharing Community development at Kyogle Road, Kunghur.

The subject site is comprised of a number of lots as shown in Figure 1.1.



Source: Planit Consulting

Figure 1.1: Subject Site Location

1.2 ASSESSMENT HISTORY AND INFORMATION REQUESTS

Bitzios has previously prepared a traffic impact assessment (TIA) for the proposed development known as Nightcap on Minjungbal. Tweed Shire Council (Council) initially raised issues regarding road safety and sight distance at the access identified as Access 3. As such, upgrades were recommended around Access 3 and have been documented / discussed in Section 6.3 herein.

Since this time, Council have further reviewed the proposal and have raised issues in regard to amenity. This particular issue has been addressed in Section 4.6.4 of this report in relation to:

- amenity associated with additional development-generated traffic; and
- impacts and/or conflicts to internal or surrounding land uses.

1.3 SCOPE OF WORKS

The scope of works for this assessment are as follows:

- review the existing conditions surrounding the subject site including road network, public transport and active transport;
- estimation of the development's traffic generation and distribution onto the external road network;
- summary of the development's impacts on the surrounding road and intersections;
- detailing the requirements for the development's on-site car parking geometric layout and car parking provision with regards to Tweed Shire Council's (Council's) Development Control Plan (DCP and AS2890;
- assessment of the site access location and form in accordance with AS2890 and (Council's) requirements; and
- assessment of the proposed servicing and refuse collection arrangements with respect to Council's and AS2890 requirements.

2. EXISTING CONDITIONS

2.1 SUBJECT SITE

The subject site is comprised of mostly greenfield land and is located approximately 28km south-west of Murwillumbah. The subject site is comprised of a number of lots as follows:

- Lot 121 on DP134446;
- Lot 3 on DP755714;
- Lot 5 on DP582299;
- Lot 1 on DP390311;
- Lot 35 on DP755714;
- Lot 11 on DP1194471;
- Lot 33 on DP755714;
- Lot 31 on DP755714;
- Lot 32 on DP755714;
- Lot 22 on DP755714;
- Lot 19 on DP755714;
- Lot 8 on DP755714;
- Lot 20 on DP755714;
- Lot 2 on DP1148316;
- Lot 1 on 1183098;
- Lot 4 on 737440;
- Lot 34 on 755714;
- Lot 2 on DP611556;
- Lot 1 on DP611556;
- Lot 2 on DP582300; and
- Lot 2 on DP1235488.

The subject site has historical planning approvals and consent of development for the proposed Residential Eco Village. This has relevance to the traffic assessment as follows:

- Approval Nightcap Village Extraordinary Planning Committee Meeting - the development will increase traffic movements on Kyogle Road and will therefore pay contributions for upgrading Kyogle Road. Once the upgrades have been constructed it is not likely that the development will constitute a traffic hazard or reduce the efficiency or capacity of Kyogle Road; and
- Nightcap Village Development Consent - construction of the intersection of Kyogle Road and the proposed access to the development is to be in accordance with Austroads Guide to Road Design Part 5: Intersections at Grade and shall provide the required sight distances.

2.2 ROAD NETWORK

The immediate road network surrounding the subject site is outlined in Table 2.1.

Table 2.1: Road Network Details

Road Name	Jurisdiction	Hierarchy	Speed Limit	No. of Lanes	Divided
Kyogle Road	Council	Regional	80km/h	2	No
Mt Burrell Road	Council	Local Road	50km/h	2	No
Waratah Court	Council	Local Road	50km/h	2	No
Mebbin Drive	Council	Local Road	50km/h	2	No
Mandalay Road	Council	Local Road	50km/h	2	No

Kyogle Road functions as a sub-arterial road that links Murwillumbah in the northeast and Kyogle southwest. Council's standard drawings were reviewed for the likely environmental capacity of a road similar to Kyogle Road however the standard drawings did not include this information. Other nearby Council standard drawings were reviewed and used a reference as follows:

- City of Gold Coast standard drawing (reference number: 02-004) shows the environmental capacity of a single carriageway, two-lane rural sub-arterial road as 14,000 vehicles per day; and
- Logan City Council Planning Scheme Schedule 2.5 Table 3.4.1.4.1 states that a rural arterial single carriageway has an environmental capacity of 22,000 vehicles per day.

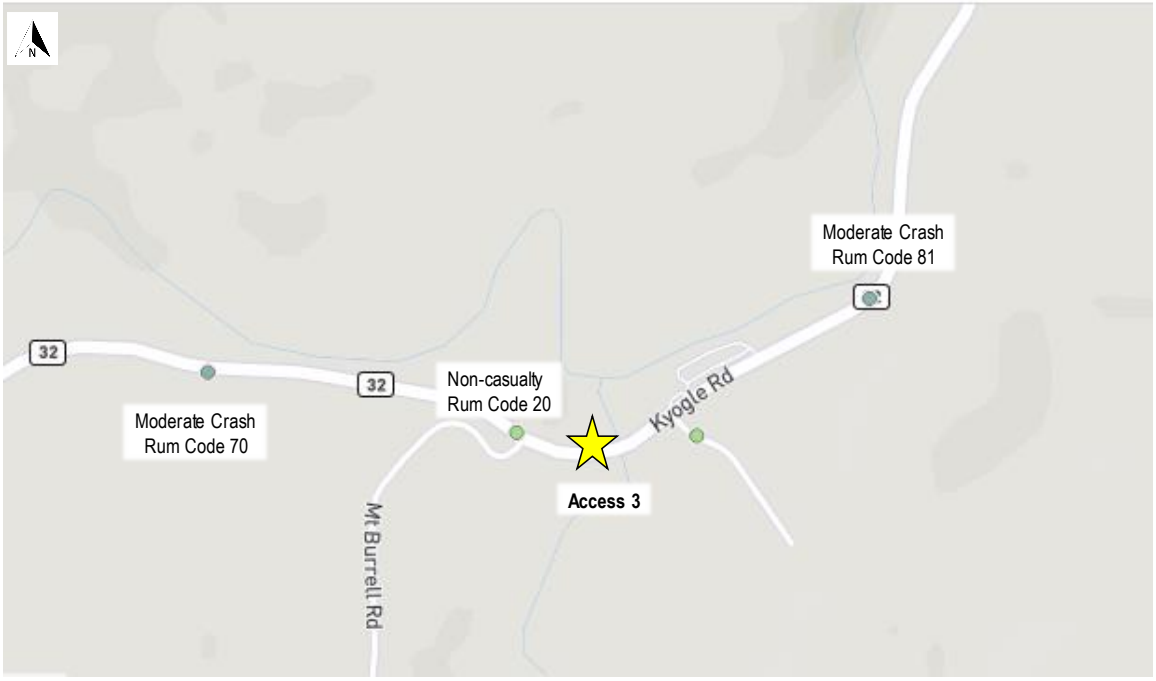
Based on the above, Kyogle Roads is likely to have an environmental capacity of no less than 14,000 vehicles per day.

Bitzios Consulting undertook a Road Safety Evaluation of Kyogle Road in 2016 was for Roads and Maritime Services (*P2639.002 Kyogle Road – Road Safety Evaluation*). The outcomes of this project identified a number of issues and recommendations for the Kyogle Road corridor, generally north of the subject site, which have partially received funding. Council have recently completed works on Kyogle Road immediately fronting Access 2 (opposite Mebbin Drive) to improve road safety outcomes including re-surfacing and line marking.

Section 6.3 recommends road safety upgrades consistent with the Road Safety Evaluation of Kyogle Road.

2.3 CRASH HISTORY ASSESSMENT

A review of historical crash data from *Transport for NSW*'s online road safety data over the most recent five (5) year period (2013 – 2017) found that there were three (3) crashes on Kyogle Road in proximity to the subject site. There were two (2) moderate crashes and one (1) non-casualty crash within 400m of the proposed Access 3. Figure 2.1 illustrates the crashes in proximity to Access 3. A fourth crash is shown in the figure however this crash is on Waratah Court and has not been included in this assessment.



Source: Transport for NSW Road Safety Data

Figure 2.1: Access 3 Crash Map

These crashes are likely a result of the 85th percentile speed observed in the tube count data being well in excess of the advisory speed signs on the curves at the proposed Access 3.

To reduce crash risks in proximity of Access 3, the turn treatments included in Section 4.4 and road safety upgrades in Section 6.3 are recommended. Providing these turn treatments is expected to significantly mitigate crash risks.

2.4 ALTERNATE TRANSPORT

There are two (2) bus stops located on Kyogle Road near Waratah Court (e.g. at Sphynx Rock Café). These stops are serviced by route 630 which operates as a loop service between Murwillumbah and Nimbin. Route 630 runs once per day and twice per day during school holiday periods. Further, it is understood that some school bus routes operate in the area that these routes are not published.

There are no pathways on Kyogle Road in proximity to the site, which is consistent with the surrounding area as Kyogle Road is a high-speed rural road. Based on the surrounding land uses, private vehicle is the most predominate mode of transport within the area.

3. PROPOSED DEVELOPMENT

3.1 DEVELOPMENT DETAILS

The proposed development is for Rural Landsharing Communities referred to as *Nightcap on Minjungbal* that includes a maximum of 392 dwellings. It is noted this type of development is not similar to a regular housing subdivision where land releases and subsequent house sales are consistent and regular. The proposed rural landsharing community is unique and expected to have residents take up plots at a relatively slow rate. It is not clear when all dwellings will be occupied however it is expected to extend over the long term (i.e. more than 10 years). This is outside the scope of a typical traffic assessment.

The development will be accessed at three (3) locations, two (2) of which are via Kyogle Road and one (1) via Mandalay Road. All of the proposed access locations are existing accesses. The locations of the accesses are shown in Section 6.

Internal to the proposed development are a number of tracks linking each of the dwellings to each of the accesses. These internal tracks are proposed to be 6.0m wide to comply with the access requirements of the New South Wales (NSW) Fire Brigade.

The site may also contain a "village" component which would consist of up to 1000m^2 of Village land use to cater to the residents. The village component is not included in this development application and will be subject to a separate application. However, the impacts of the village are considered in Section 4 and 6 of this report so that any infrastructure provided as part of the proposed development does not limit the possible inclusion of the village at a later stage.

The proposed development plans are provided in **Appendix A**.

4. TRAFFIC ASSESSMENT

4.1 OVERVIEW

The purpose of this assessment is to determine the impacts of the proposed development on the external road network. This requires that the development's impacts be determined at the anticipated 'year of opening' and at the '10-year design horizon'. For the purpose of this assessment, the proposed development's anticipated year of opening is year 2020 and the 10-year design horizon is year 2030.

Traffic demands have been prepared for the following scenarios:

- **Year 2020 AM / PM / Weekday, Background Traffic Volumes:** determined by applying growth rates to the traffic survey data;
- **Year 2020 AM / PM / Weekday peak hour, Design Traffic Volumes:** determined by combining Background Traffic and the development traffic;
- **Year 2030 AM / PM / Weekday peak hour, Background Traffic Volumes:** determined by applying growth rates to the traffic survey data; and
- **Year 2030 AM / PM / Weekday peak hour, Design Traffic Volumes:** determined by combining Background Traffic and the development traffic.

4.2 BACKGROUND TRAFFIC VOLUMES

Historic traffic survey data was provided by Council and included tube count traffic survey data on Kyogle Road (M.R.142 - west of Byrril Creek Road) from Wednesday 23rd November 2016 to Monday 29th November 2016. More recent tube count traffic survey data was also collected by Traffic Data and Control (TDC) from Tuesday 26th February 2019 to Monday 4th March 2019. This included tube counts at two (2) locations on Kyogle Road at the locations shown in Figure 4.1.

Source: Nearmap

Figure 4.1: TDC Tube Count Locations

The TDC tube count traffic survey data was used in this assessment and has been provided in **Appendix B**. An intersection count at the Kyogle Road / Mt Burrell Road intersection (near Sphynx Rock Café) was also undertaken to gain an understanding of the peak hour profiles and have been provided in **Appendix C**. The

survey data showed that the morning and afternoon peak hours were 11:00am-12:00pm and 3:45pm-4:45pm. These peak hours are based on the average of the weekdays surveyed.

A growth rate was gained from the AADT volumes available on Council's website for Kyogle Road in proximity of the subject site. A compounding annual growth rate of 2.67% per annum was applied to all movements to forecast traffic volumes. This growth rate was used to forecast the traffic survey data to future years. The background traffic volumes for 'the year of opening' and at the '10-year design horizon' for the three intersections is provided in **Appendix D.**

The following was added to the background traffic to account for existing developments:

- an additional two (2) peak hour trips were included in the background traffic at Access 1 (Mandalay Road) to cater for the existing accesses on Mandalay Road; and
- an additional six (6) peak hour trips were included in the background traffic at Access 2 (opposite Mebbin Drive) to cater for the existing Outward-Bound development.

4.3 DESIGN TRAFFIC

4.3.1 Development Traffic Generation and Distribution

The Roads and Maritime Services' (Roads and Maritime) *Guide to Traffic Generating Developments – Technical Direction* (2013) was used to source traffic generation rates for the proposed development. A 'rural land share community' was not included so traffic generation rates for 'low density residential' was adopted for the assessment. This is expected to result in a conservative assessment of the proposed development's impacts. Traffic generation rates for 'shopping centre' was adopted for the potential future village component. The traffic generated by the proposed development is detailed in Table 4.1.

Table 4.1: Development Traffic Generation

Land Use	Quantity	Traffic Generation Rate		Traffic (veh / h)	
		AM	PM	AM	PM
Low density residential	392 dwellings	0.71 trips per dwelling	0.78 trips per dwelling	279	306
Shopping Centre	1,000m^2	12.3 trips per 100m^2	12.3 trips per 100m^2	123	123
			Total (including Village)	403	430
			Total (excluding Village)	279	306

Due to the nature of residents mostly leaving for work in the morning and returning from work in the evening, it is expected that during the AM peak the IN:OUT trip split would be 20%/80%, and during the PM peak the IN:OUT trip split would be 60%/40%. The PM peak has a flatter spread of traffic to account for residents returning home during the typical school peak (3:00-4:00pm) and commuter peak (5:00-6:00pm). IN:OUT splits for the potential future village would be 50%/50% for both the AM and PM peaks. The development traffic directionality adopted for this assessment is detailed in Table 4.2.

Table 4.2: Development Traffic Directionality

Land Use	IN / OUT (%)		AM Trips (veh / h)		PM Trips (veh / h)	
	AM	PM	IN	OUT	IN	OUT
Low density residential	20% / 80%	60% / 40%	56	224	184	123
Village	50% / 50%	50% / 50%	62	62	62	62
		Total (including Village)	118	286	246	185
		Total (excluding Village)	56	224	184	123

The distribution of development traffic has been based on the distributions of traffic observed from Council's 2016 tube count data, TDC's 2019 tube count data and 2019 intersection counts at the Mt Burrell / Kyogle Road intersection. The distribution of the development traffic is shown in **Appendix E**.

For this assessment, the proportion of vehicles utilising each access was determined based on the proximity to the respective access. That is, how far each dwelling is from the nearest access. The proportion of residential development trips at each access is illustrated in Figure 6.1 and is as follows:

- Access 1 – 20% using Mandalay Road / Kyogle Road;
- Access 2 – 30% using Kyogle Road / site access; and
- Access 3 – 50% using Kyogle Road / site access.

Should the village be included in future work, it is expected that all related trips would utilise Access 2.

4.3.2 Design Traffic Volumes

The traffic generated by the proposed development has been added to the background traffic volumes to determine design traffic volumes ('with development' scenario). The year 2020 and year 2030 design traffic volumes are shown in **Appendix F.**

4.4 ACCESS INTERSECTIONS

4.4.1 Turn Warrants Assessment

Due to the nature of the proposed rural land share community, it is unclear if turn treatments will be required within the 10-year design horizon (year 2030).

However, due to existing road safety issues on Kyogle Road and traffic volumes associated with the village component, it is likely that turn treatments will be required on Kyogle Road once the traffic associated with the proposed development exceeds the existing density (i.e. detached dwelling). Turning treatments will be required for the village component as evidenced by the existing village consent which required upgrades. It is understood this village component remains the nexus for the upgrades.

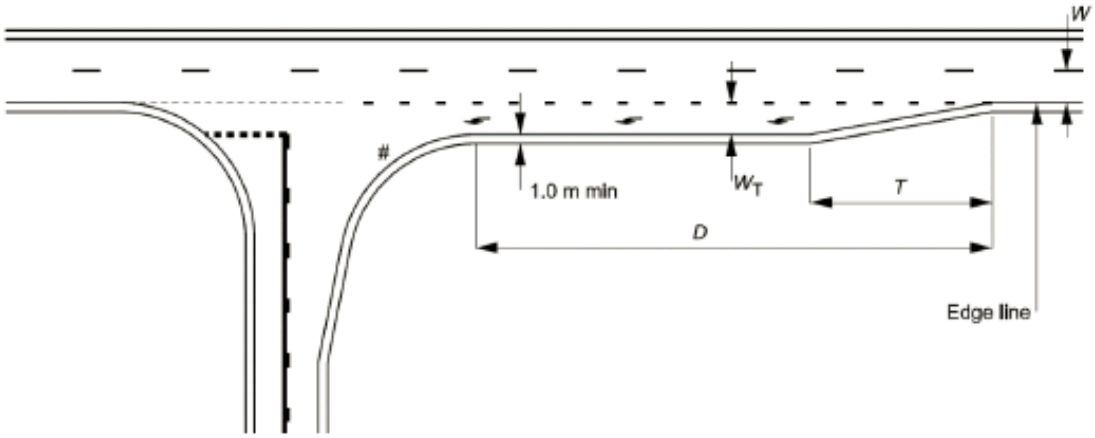
The access treatments detailed in 4.4.2 show the minimum required to address safety concerns on Kyogle Road and cater for the year 2030 design traffic *including* the village component.

The requirements for access treatments will be investigated in detail at a later stage as part of subsequent Development Applications, with the application for the concept not resulting in additional trip generation and not forming a nexus at this stage for upgrades.

4.4.2 Potential Access Treatments

The potential access treatments for each location includes a CHR(S) and AUL(S) based on the likely volumes associated with the ultimate development form. As stated previously, due to the nature of the proposed rural land share community, it is unclear if turn treatments will be required within the 10-year design horizon (year 2030).

For each turn treatment, a design speed of 10km/h over the speed limit has been adopted. This is considered appropriate for the proposed turn treatments. Figure 4.2 and Table 4.3 illustrates the geometry requirements for an AUL(S) in accordance with Austroads *Guide to Road Design Part 4a: Signalised and Unsignalised Intersections*.



 # Based on design vehicle swept paths

Figure 4.2: Rural AUL(S) Treatment with a Short Left-turn Lane

Table 4.3: Dimensions for AUL(S) Treatment

Design Speed (km/h)	Turning Lane Width (m)	Diverge/deceleration Length D (m)	Taper Length T (m)
90	3	55	25

Figure 4.3 and Table 4.4 illustrates the geometry requirements for an CHR(S) in accordance with Austroads *Guide to Road Design Part 4: Intersections and Crossings – General (Appendix A)*.

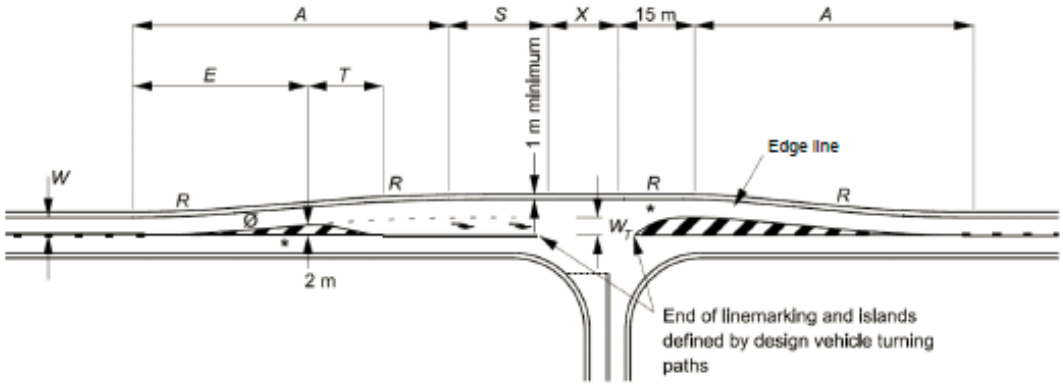


Figure 4.3: Channelised Right-turn Treatment

Table 4.4: Dimensions for CHR(S) Treatment

Design Speed (km/h)	Turning Lane Width W_T (m)	Lateral Movement Length A (m)	Storage Length S (m)	Desirable Radius R (m)	Taper Length T (m)
90	3	75	20	350	25

There is an existing bridge located east of Access 3. The geometric form of the bridge requires further investigation to accommodate the proposed CHR(S) treatment.

4.5 INTERSECTION ASSESSMENT

4.5.1 Overview

SIDRA Intersection (version 8) has been used to assess the background and design traffic scenarios for the anticipated year of opening (2020) and the 10-year design horizon (2030). The two (2) site accesses via Kyogle Road and the Kyogle Road / Mandalay Road intersection have been analysed to determine each intersection's operational performance during the AM and PM peak hours.

For the purposes of this assessment, the three (3) intersections consider a CHR(S) treatment and AUL(S) treatment as detailed in Section 4.4. Figure 4.4 details the intersection layout considered for Access 1 and Access 3. The 20m lane length for the CHR(S) and AUL(S) treatments represent the storage length and not the total length of the treatment. Figure 4.5 details the intersection layout adopted for Access 2.

As stipulated previously, the requirements for access treatments do not form part of the concept and will be investigated in detailed at a later stage as part of subsequent Development Applications.

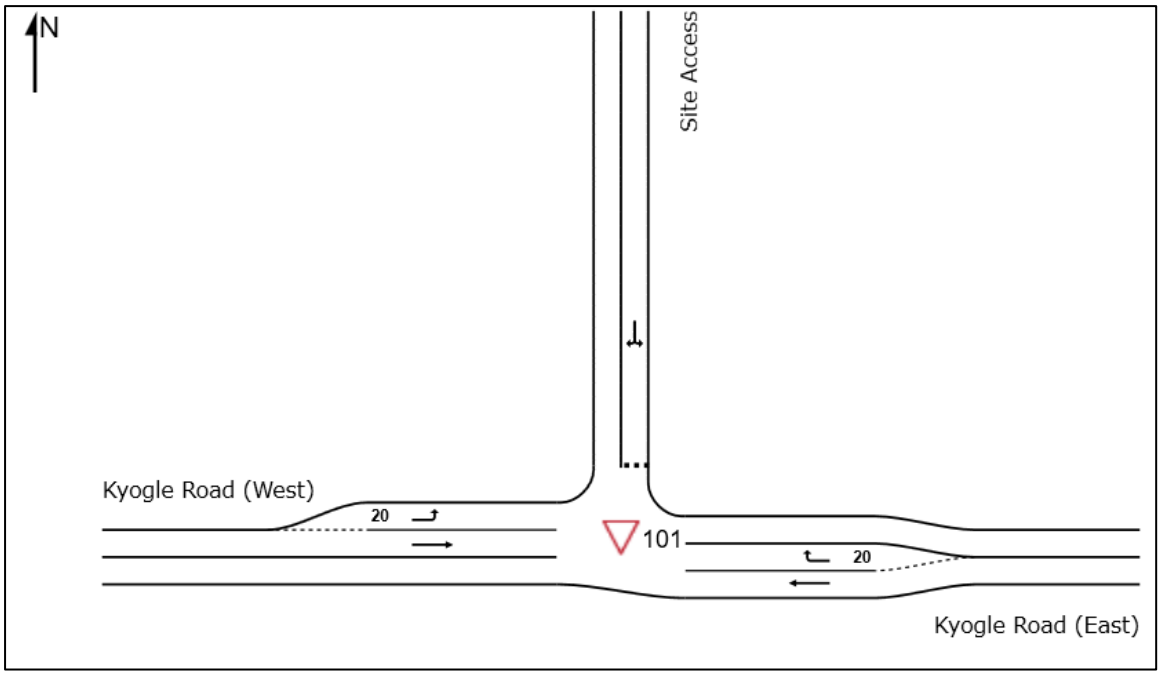


Figure 4.4: SIDRA Intersection Layout – Access 1 and Access 3

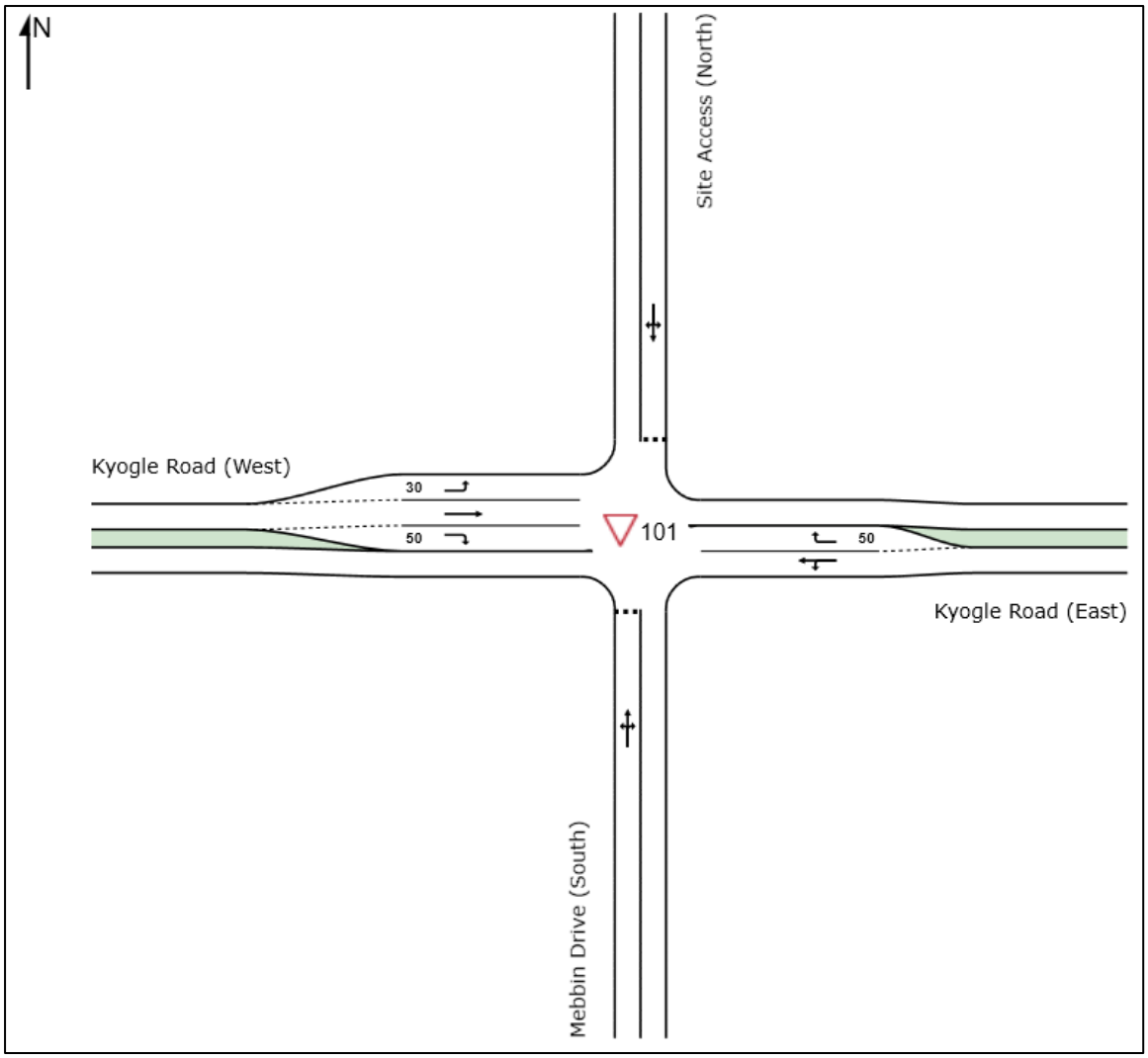


Figure 4.5: SIDRA Intersection Layout – Access 2

4.5.2 Access 1 – Kyogle Road / Mandalay Road Intersection

The SIDRA results for the anticipated year of opening and 10-year design horizon are summarised in Table 4.5 and Table 4.6. Detailed SIDRA results are provided in **Appendix H**.

Table 4.5: Access 1 – Kyogle Road / Mandalay Road Intersection 2020 SIDRA Results Summary

Intersection	AM Peak				PM Peak			
	LOS	Avg. Delay (s)	95%ile Queue (m)	DOS	LOS	Avg. Delay (s)	95%ile Queue (m)	DOS
2020 Background (without development)								
Kyogle Road (East)	NA	0	0	0.04	NA	0	0	0.04
Mandalay Road (North)	A	6	0	0.00	A	6	0	0.00
Kyogle Road (West)	NA	0	0	0.03	NA	0	0	0.04
2020 Design (with development)								
Kyogle Road (East)	NA	1	0	0.05	NA	1	1	0.08
Mandalay Road (North)	A	7	2	0.06	A	7	1	0.04
Kyogle Road (West)	NA	0	0	0.08	NA	1	0	0.07

Table 4.6: Access 1 – Kyogle Road / Mandalay Road Intersection 2030 SIDRA Results Summary

Intersection	AM Peak				PM Peak			
	LOS	Avg. Delay (s)	95%ile Queue (m)	DOS	LOS	Avg. Delay (s)	95%ile Queue (m)	DOS
2030 Background (without development)								
Kyogle Road (East)	NA	0	0	0.04	NA	0	0	0.05
Mandalay Road (North)	A	6	0	0.00	A	6	0	0.00
Kyogle Road (West)	NA	0	0	0.04	NA	0	0	0.05
2030 Design (with development)								
Kyogle Road (East)	NA	1	0	0.06	NA	1	1	0.10
Mandalay Road (North)	A	7	2	0.07	A	7	1	0.04
Kyogle Road (West)	NA	0	0	0.09	NA	0	0	0.08

The results show that at the anticipated year of opening the Kyogle Road / Mandalay Road intersection is expected to operate within acceptable performance thresholds for a priority controlled intersection. The addition of the development traffic causes a minor worsening of the results but does not cause any significant impacts. No mitigation measures to the current configuration are required for the intersection to operate within acceptable thresholds.

4.5.3 Access 2 – Site Access / Kyogle Road Intersection

The SIDRA results for the anticipated year of opening and 10-year design horizon are summarised in Table 4.7 and Table 4.8. Detailed SIDRA results are provided in **Appendix H**.

Table 4.7: Access 2 – Site Access / Kyogle Road Intersection 2020 SIDRA Results Summary

Intersection	AM Peak				PM Peak			
	LOS	Avg. Delay (s)	95%ile Queue (m)	DOS	LOS	Avg. Delay (s)	95%ile Queue (m)	DOS
2020 Background (without development)								
Kyogle Road (East)	NA	0	0	0.03	NA	0	0	0.04
Site Access (North)	A	6	0	0	A	6	0	0
Kyogle Road (West)	NA	0	0	0.03	NA	0	0	0.04
2020 Design (with development)								
Kyogle Road (East)	NA	0	0	0.05	NA	0	0	0.07
Site Access (North)	A	6	2	0.08	A	7	1	0.06
Kyogle Road (West)	NA	0	0	0.06	NA	1	0	0.07

Table 4.8: Access 2 – Site Access / Kyogle Road Intersection 2030 SIDRA Results Summary

Intersection	AM Peak				PM Peak			
	LOS	Avg. Delay (s)	95%ile Queue (m)	DOS	LOS	Avg. Delay (s)	95%ile Queue (m)	DOS
2030 Background (without development)								
Kyogle Road (East)	NA	0	0	0.04	NA	0	0	0.05
Site Access (North)	A	6	0	0	A	6	0	0
Kyogle Road (West)	NA	0	0	0.04	NA	0	0	0.05
2030 Design (with development)								
Kyogle Road (East)	NA	0	0	0.06	NA	0	0	0.08
Site Access (North)	A	7	2	0.08	A	7	1	0.06
Kyogle Road (West)	NA	0	0	0.07	NA	0	0	0.08

The results show that at the anticipated year of opening the Kyogle Road / Access 2 intersection is expected to operate within acceptable performance thresholds for a priority controlled intersection. The addition of the development traffic causes a minor worsening of the results but does not cause any significant impacts. No mitigation measures to the current configuration are required for the intersection to operate within acceptable thresholds.

4.5.4 Access 3 – Site Access / Kyogle Road Intersection

The SIDRA results for the anticipated year of opening and 10-year design horizon are summarised in Table 4.9 and Table 4.10. Detailed SIDRA results are provided in **Appendix H**.

Table 4.9: Access 3 – Site Access / Kyogle Road Intersection 2020 SIDRA Results Summary

Intersection	AM Peak				PM Peak			
	LOS	Avg. Delay (s)	95%ile Queue (m)	DOS	LOS	Avg. Delay (s)	95%ile Queue (m)	DOS
2020 Background (without development)								
Kyogle Road (East)	NA	0	0	0.04	NA	0	0	0.04
Site Access (North)	A	6	0	0.00	A	6	0	0.00
Kyogle Road (West)	NA	0	0	0.04	NA	0	0	0.04
2020 Design (with development)								
Kyogle Road (East)	NA	0	0	0.09	NA	1	2	0.08
Site Access (North)	A	7	2	0.08	A	7	1	0.05
Kyogle Road (West)	NA	0	0	0.05	NA	1	0	0.08

Table 4.10: Access 3 – Site Access / Kyogle Road Intersection 2030 SIDRA Results Summary

Intersection	AM Peak				PM Peak			
	LOS	Avg. Delay (s)	95%ile Queue (m)	DOS	LOS	Avg. Delay (s)	95%ile Queue (m)	DOS
2030 Background (without development)								
Kyogle Road (East)	NA	0	0	0.05	NA	0	0	0.06
Site Access (North)	A	6	0	0.00	A	6	0	0.00
Kyogle Road (West)	NA	0	0	0.05	NA	0	0	0.05
2030 Design (with development)								
Kyogle Road (East)	NA	0	0	0.08	NA	0	0	0.10
Site Access (North)	A	7	4	0.14	A	7	2	0.08
Kyogle Road (West)	NA	0	0	0.05	NA	0	0	0.06

The results show that at the anticipated year of opening the Kyogle Road / Access 3 intersection is expected to operate within acceptable performance thresholds for a priority controlled intersection. The addition of the development traffic causes a minor worsening of the results but does not cause any significant impacts. No mitigation measures to the current configuration are required for the intersection to operate within acceptable thresholds.

4.5.5 Traffic Impacts Summary

The SIDRA intersection modelling illustrated that all three (3) accesses operate within acceptable performance limits for a priority-controlled intersection. The expected growth in the area and the addition of the development traffic do not have significant impacts on the intersections' performance. No mitigation measures are required to be imposed on the proposed development.

4.6 ROAD CONTRIBUTIONS AND CAPACITY

4.6.1 Council CP04 - Section 7.11 Road Contributions

The Tweed Road Contributions Plan (TRCP) Section 7.11 (formerly Section 9.4) are determined based on a developments number of "daily trips" using rates found within Council's Section 7.11 Plan No. 4 – TRCP. Rates for a low-density residential land use was adopted for this assessment. The estimated daily traffic generation for the purposes of determining Road Contributions are summarised in Table 4.11.

Table 4.11: Estimated Trip Generation for Contributions

Type	Quantity	Daily Trip Rate	Total Approximate Daily Trips
Low density residential	392 dwellings	6.5 trips per dwelling	2,550
Shopping Centre	1000m^2	200 + 0.8 trips per sqm	1,000
		Total (including Village)	3,555
		Total (excluding Village)	2,550

A total of 2,550 vehicles per day has been determined for the purpose of calculating *TSC's Section 7.11 Road Contributions* for the proposed development. This daily trip value does not consider that the "village" component of the development will reduce the trips generated by the "rural land share" component. The RMS Guide states that for residential developments with community facilities (i.e. shopping centres, recreational facilities, etc) about 25% of trips are internal. Therefore, the daily trips could reduce as it includes "village" component.

This assessment excludes any contributions that may have been made as part of previous development applications.

4.6.2 Road Development Strategy

The Tweed Road Development Strategy (RDS) forecasts traffic conditions at year 2041 using a Strategic Transport Model and recommends road upgrades for all major roads in the LGA. This Strategy includes 50 recommendations for upgrades spread throughout the LGA with four (4) being located nearby in Murwillumbah (Upgrade Reference: 47-50). The future traffic conditions were assessed using Council's Strategic Transport Model (TSTM-MM). This model has been used to determine the forecast volumes on Kyogle Road in proximity of the subject site. Both 'without' and 'with' development scenarios were tested.

The subject site is included in a larger zone in Council's Strategic Transport Model, so several other developments are also captured. The proposed development was included in Council's Strategic Transport Model by increasing the population consistent with the proposed residential yield. The outputs of the Strategic Transport Model for year 2041 are summarised as follows:

- the subject site 'without' the proposed development generates 1,581 vehicles per day and 'with' the proposed development generates 1,896 vehicles per day;
- Kyogle Road near the subject site 'without' the proposed development experiences 3,224 vehicles per day and 'with' the proposed development experiences 3,477 vehicles per day;
- the proposed development generates around 200 vehicles per day to Murwillumbah of which less than 100 of these trips continuing further than Murwillumbah (e.g. towards Tweed).

The road upgrades stipulated in the Tweed RDS that align with the development trips are Tweed Valley Way four-laning (Upgrade Reference: 49) and Tweed Valley Way / Quarry Road intersection upgrade (Upgrade Reference: 50). The Strategic Transport Model shows that in year 2041 these roads are projected to carry around 22,000 vehicles per day. The traffic associated with the proposed development equates to around 0.4% of daily traffic volumes and is not considered a significant increase (i.e. less than 5%).

The Strategic Transport Model outputs are provided in **Appendix G**.

4.6.3 Environmental Road Capacity

Due to the nature of the proposed rural land share community, the traffic generated by the proposed development is expected to increase gradually over time, including daily traffic. However, it is unclear if this will occur within the 10-year design horizon (year 2030). The requirements for improvements due to environmental capacity thresholds will be investigated in detail at a later stage as part of subsequent Development Applications, with the application for the concept not resulting in additional trip generation and not forming a nexus at this stage for upgrades.

The proposed development leverages existing vehicular access to Kyogle Road and Mandalay Road. As discussed in Section 2.2, the environmental capacity of Kyogle Road is expected to be at least 14,000 vehicles per day. Mandalay Road's formation width varies between 3.0m and 6.0m between Kyogle Road and the subject site. For this assessment, Mandalay Road has been assumed as being constructed to a "Class A Formation" as shown on Council's standard drawing S.D.009 (August 2014). It is estimated that the percentage of development trips using Mandalay Road is 20% (refer Section 4.3.1).

The estimated daily traffic volumes generated by the development (refer Table 4.11) on Kyogle Road and Mandalay Road and the respective environmental capacity is detailed in Table 4.12.

Table 4.12: Forecast Daily Traffic Volumes and Environmental Capacity at Year 2030

Road Name	Background Traffic (without development)	Design Traffic (with development)	Environmental Capacity
Without Village			
Kyogle Road	3,224 vpd	5,779 vpd	14,000 vpd
Mandalay Road	40 vpd	551 vpd	150 vpd*
			1,000 vpd**
With Village			
Kyogle Road	3,224 vpd	6,779 vpd	14,000 vpd
Mandalay Road	40 vpd	551 vpd	150 vpd*
			1,000 vpd**

** Class A Formation as shown on Council's standard drawing S.D.009 (August 2014)*

*** Class C Formation as shown on Council's standard drawing S.D.009 (August 2014)*

Kyogle Road is expected to operate within its environmental capacity and Mandalay Road is expected to exceed its environmental capacity. For the ultimate development form, Mandalay Road would need to be upgraded to a "Class C Formation" as shown on Council's standard drawing S.D.009 (August 2014) to increase its environmental capacity to 1,000 vehicles per day. This road capacity exceeds the estimated design traffic volumes at year 2030 and is therefore adequate to accommodate the traffic associated with the development. Based on the existing volumes, the threshold for upgrading Mandalay Road is around 17 dwellings accessing through Access 1 or, based on the distributions in Section 4.3, 85 dwellings in total.

The road reserve width requirement shown on Council's standard drawing S.D.009 (August 2014) exceeds the current available road reserve width for the first 100m of Mandalay Road from Kyogle Road (i.e. would require private land acquisition). It is noted that the pavement width prescribed by the standard drawing can be achieved but a reduced verge width (approximately 1m per side) would be required for this section. This is not expected to have adverse impacts on the road capacity and is therefore an acceptable outcome given the constraints. The remaining section of Mandalay Road has adequate road reserve width to achieve the required pavement and verge widths in Council's standard drawing.

4.6.4 Amenity Review

Section 4.6.2 of this report outlines that the traffic associated with the development equates to 0.4% of the total projected traffic volumes of Kyogle Road for 2041. Given Kyogle Road functions as a sub-arterial road and will operate within its environmental capacity with the additional development trips, the amenity is considered to remain unaffected and will not result in any significant adverse traffic impacts.

In terms of movements within the site, the internal network is positioned away from any surrounding boundaries and sufficiently buffered by distance, vegetation and topography to ensure no adverse amenity impacts. Vehicle movements through the site are envisioned as low speed and highly unlikely to generate excess noise, dust or impact. The rural nature of dwellings and the surrounding area, in addition to the permissibility and nature of the proposed rural land use, does not envision any land use conflicts.

Additionally, consideration of possible road upgrades aim to ensure that the amenity remains intact, including:

- widening of Mandalay Road from 3m to 6m allows two (2) vehicles to pass, eliminating any possible conflicts
- turn treatments including a CHR(S) and AUL(S) are considered for all three (3) accesses allowing vehicles to safety pass on Kyogle Road and decelerate safely clear of through traffic.

As such, there are no expected or perceived impacts to amenity associated with additional development-generated traffic, nor any impacts / conflicts to internal or surrounding land uses.

5. PARKING ASSESSMENT

5.1 CAR PARKING REQUIREMENT

Council's *Site Access and Parking Code* (2014) doesn't specify a parking rate for a 'rural landsharing community' land use. A 'dwelling house' land use has therefore been used to determine the car and bicycle parking requirements for the proposed development and includes the following rates:

- one (1) space per dwelling plus provision for driveway parking of another vehicle (2 spaces per dwelling); and
- bicycle parking is not required.

The proposed development is to provide car and bicycle parking in accordance with the above rates. The parking requirements and provision will be assessed in detail at a later stage.

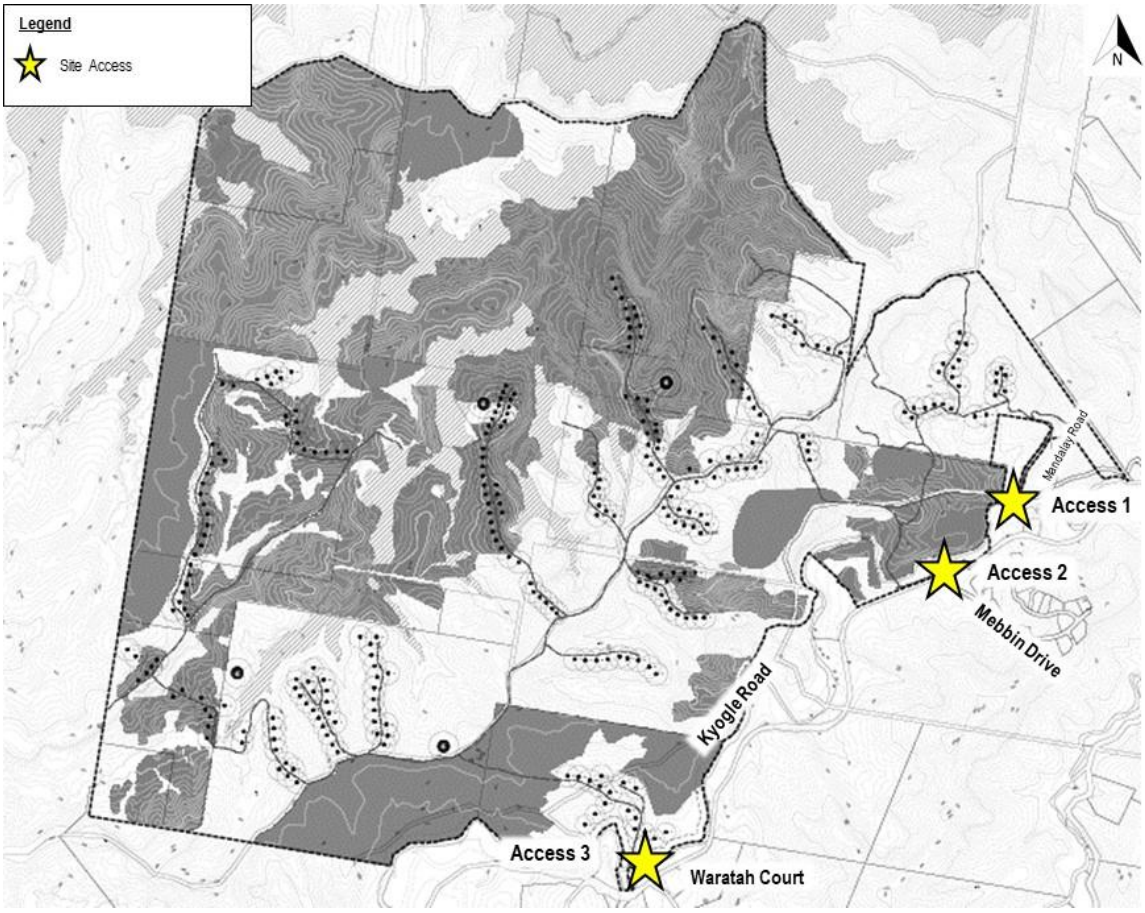
5.2 PARKING GEOMETRY AND LAYOUT

The proposed development's car parking, internal road geometry and layout will be designed in accordance with the relevant requirements of Council's *Subdivision Manual*, Council's *Site Access and Parking Code* (2014) and Australian Standards (AS2890). The parking geometry and layout will be assessed in detail at a later stage.

6. ACCESS AND SERVICING ASSESSMENT

6.1 VEHICULAR ACCESS

Vehicular access leverages existing connections at three (3) locations as shown in Figure 6.1. All of these accesses are two-way and all-movements permitted.



Source: Planit Consulting

Figure 6.1: Proposed Access Locations

The proposed access locations are described as:

- **Access 1**: northern end of Mandalay Road;
- **Access 2**: near Mebbin Drive on the northern side of Kyogle Road; and
- **Access 3**: between Waratah Court and Mt Burrell Road on the northern side of Kyogle Road.

Council's *Driveway Access to Property* (version 1.4) was used to source the access type requirements. This specifies that the accesses are to be provided consistent with Council's standard drawing (S.D.011). Pedestrian sight triangles are to be provided on both sides of each access.

6.2 QUEUEING ASSESSMENT

The queueing requirement for the proposed development was gained from the Austroads *Guide to Traffic Management Part 2: Traffic Theory* (2015) to ensure that vehicles are not queueing back on to the public road (Kyogle Road). This queueing requirement is based on the development traffic generation as detailed in Section 4.3.1. For this assessment, the following values were adopted:

- Access 1 Peak Ingress: 37 vehicles per hour;
- Access 2 Peak Ingress: 55 vehicles per hour (118 vehicles per hour with Village); and
- Access 3 Peak Ingress: 92 vehicles per hour.

For each access, a peak service rate of 250 vehicles per hour was adopted. Appendix D of AS2890.1 states that this service rate is the equivalent of a 'manually controlled' entry to a car park. This is expected to result in a conservative estimate of the queueing requirements for the proposed development. The requirement for each access is detail in Table 6.1.

Table 6.1: Access Queueing Requirements

Access	Queueing Requirement
1 – Mandalay Road	1 vehicle or 6m
2 – Right of Mebbin Drive	2 vehicles or 12m (4 vehicles or 24m with Village)
3 – Between Waratah Court and Mt Burrell Road	3 vehicles or 18m

Any vehicle hold points (e.g. gates, parking spaces, etc.) are to be located outside the queueing requirement. This is to be measured from the property boundary into the subject site.

6.3 SIGHT DISTANCE ASSESSMENT

Sight distance requirements for both Access 2 and Access 3 were assessed in accordance with Council's *Driveway Access to Property* (version 1.4). Table 6.2 details the sight distance requirements and the available sight distance at both access locations. Access 1 was not included in the sight distance assessment as the access intersects the end of Mandalay Road.

Table 6.2: Sight Distance Requirements

Access Name	85th Percentile Speed[1]	Sight Distance Required	Looking East	Looking West
Access 2	91km/h	212m	+250m	235m
Access 3	68km/h	130m	114m	124m

1 – The 85th percentile speeds were adopted from the TDC tube count traffic data

Figure 6.2 and Figure 6.3 illustrate the available sight distance at access 2 and 3.

Source: Nearmaps

Figure 6.2: Available Sight Distance – Access 2

Source: Nearmaps

Figure 6.3: Available Sight Distance – Access 3

Based on the above, the available sight distance complies with Council's requirements with the exception of Access 3. The existing road environment surrounding Access 3 limits the available sight distance. The sight distance at Access 3 was investigated further against the relevant Austroads Guides.

The Austroads *Guide to Road Design Part 3: Geometric Design* (AGRD3) states that the minimum sight distance at an intersection is stopping sight distance requirement (SSD). Table 5.4 of AGRD3 shows that for a design speed of 68km/h (85th percentile speed adopted from the traffic surveys) the SSD requirement is 100m.

Austroads *Guide to Road Design Part 3: Geometric Design* states that sight distance is correlated to travel times or the time for a driver to observe and react. The conservative minimum decision-reaction time of 5.5 seconds, which includes 3.0 seconds of observation time plus 2.5 seconds of reaction time, is appropriate for high speed roads with unalerted driving conditions. This is similar to Kyogle Road and is the most conservative decision-reaction time. Based on the 85th percentile speed of 68km/h and available sight distance of 114m, the available decision-reaction time at Access 3 is approximately 6.0 seconds. The available decision-reaction exceeds the minimum decision-reaction stipulated by Austroads.

Based on this, the available sight distance at Access 3 is considered adequate for the proposed development and unlikely to result in adverse conditions for the area. To further improve conditions, it is recommended that regular trimming of the vegetation at the accesses is undertaken to maintain adequate sight lines.

To further reduce crash risks around Access 3, it is recommended that upgrades consistent with the Bitzios Consulting Road Safety Evaluation of Kyogle Road in 2016 for Roads and Maritime Services (*P2639.002 Kyogle Road – Road Safety Evaluation*) are considered. These include:

- for the westbound approach to Waratah Court and eastbound approach to Mount Burrell Road, replacing the existing "Side Road Intersection on Straight" (W2-4) sign and with a "Advanced Side Street Road Name" (G1-207) sign;
- modify the above recommended "Advanced Side Street Road Name" (G1-207) sign for Waratah Court to include the proposed development's access;
- for the section of Kyogle Road between Waratah Court and 100m west of Mount Burrell Road, consolidate the "Curve Warning" (W1-3) signs and supplementary "Advisory Speed" (W8-2) sign with a "High Impact Curve Warning" sign (similar to W2-212)
- providing Raise Retroreflective Pavement Markers (RRPM) on Kyogle Road between Waratah Court and 100m west of Mount Burrell Road;

- providing all longitudinal lines (Double Barrier – BB and Edge – E1) on Kyogle Road between Waratah Court and 100m west of Mount Burrell Road; and
- trimming vegetation adjacent to Kyogle Road between Waratah Court and 100m west of Mount Burrell Road.

It is noted that the section of Kyogle Road between Waratah Court and 100m west of Mount Burrell Road already includes the majority of the recommended line marking and RRPMs and already includes guideposts and "Chevron Alignment Marker" (D4-6) signs.

6.4 PEDESTRIAN ACCESS AND CONNECTIVITY

Due to the rural setting there is limited pedestrian access and connectivity on the external road network surrounding the site. Based on the surrounding land uses and rural setting, private vehicle is the most predominate mode of transport and the area therefore does not warrant active transport infrastructure at this stage.

The proposed development will however provide sufficient pedestrian connections internal to the site and to the nearby bus stop on Kyogle Road near Waratah Court (e.g. at Sphynx Rock Café). No further pedestrian connections are deemed necessary.

6.5 SERVICING AND REFUSE COLLECTION

The servicing and refuse collection will be undertaken within the property with full on-site manoeuvring near the three (3) access locations. Details on manoeuvring for servicing and refuse vehicles will be provided at a later stage. As stated in the Section 3.1, internal tracks are proposed to be 6.0m wide to comply with the access requirements of the New South Wales (NSW) Fire Brigade. This width is adequate for service vehicles and cars to pass.

To facilitate school bus access, it is recommended that a dedicated pick-up and set-down area or common collection point be provided at the one of the accesses. It understood that a parking area is potentially being provided at Access 2 (opposite Mebbin Drive). This area could be modified to include a dedicated pick-up and set-down area for school buses subject to swept path analysis.

7. SUMMARY AND CONCLUSIONS

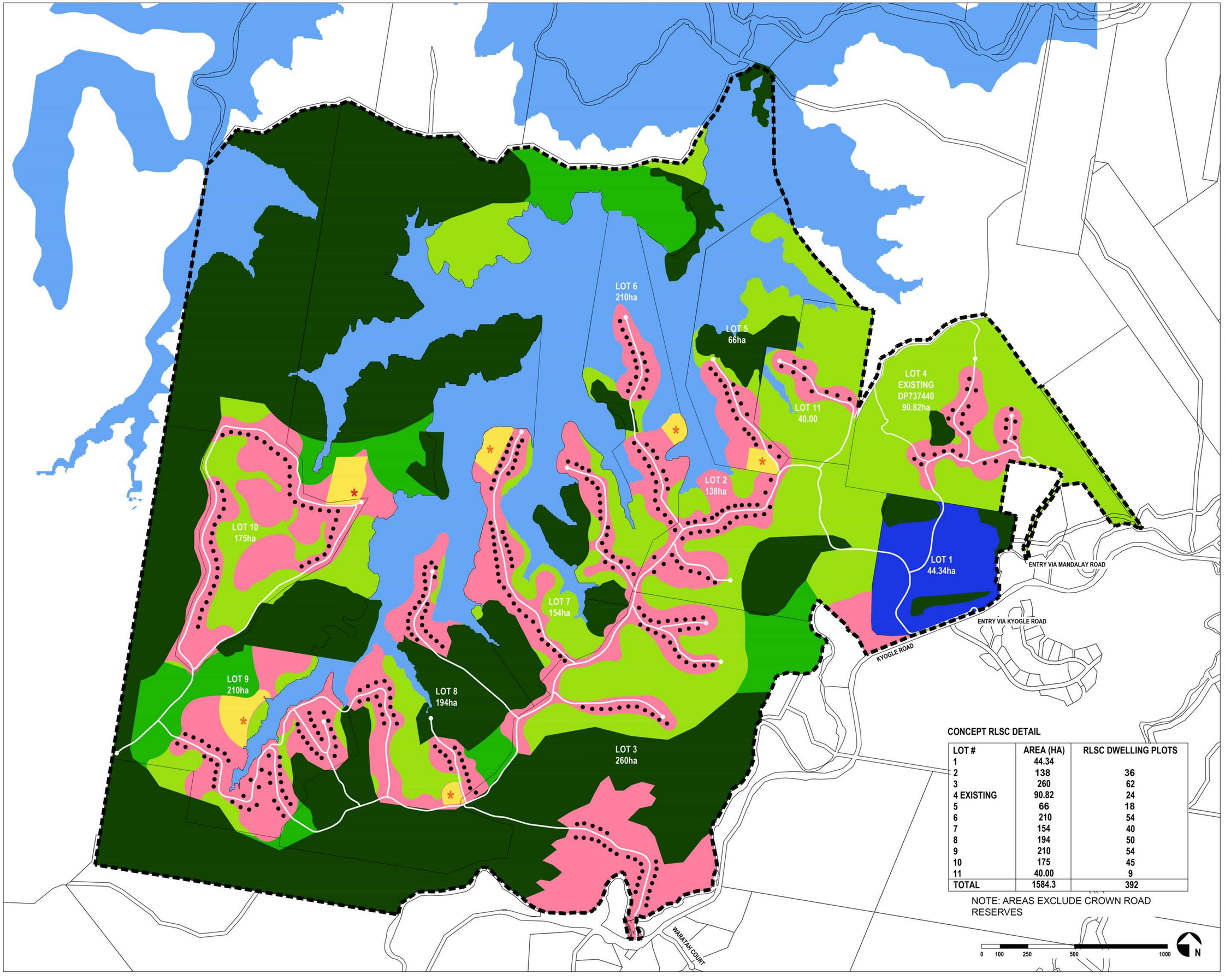
The key findings of the Nightcap on Minjungbal TIA are as follows:

- the proposed development is for 392 residential dwellings and is accessed via three (3) access locations off Kyogle Road;
- the proposed development is estimated to generate 280 trips in the AM peak hour and 306 trips in the PM peak hour;
- it has been assumed the proposed development will require a CHR(S) and an AUL(S) at all three (3) access locations to address safety on Kyogle Road and cater for year 2030 design traffic including the village component. However, the warrants for the proposed access treatments will be investigated in detail at a later stage as part of subsequent Development Applications;
- the intersection assessment demonstrated that each access location operates within acceptable performance for a priority-controlled intersection at the anticipated year of opening and 10-year design horizon;
- a total of 2,550 daily trips has been determined for the purpose of calculating Council's Section 7.11 Road Contributions for the proposed development;
- the traffic associated with the proposed development does not trigger the need to bring forward the upgrades included in the Tweed Road Development Strategy;
- the traffic associated with the proposed development may require that Mandalay Road be upgraded similar to a "Class C Formation" as shown on Council's standard drawing S.D.009. This will be investigated at a later stage;
- the development will provide two (2) car parking spaces per dwelling in accordance with the Council's Site Access and Parking Code (2014);
- the proposed development's car parking, internal road geometry and layout will be designed in accordance with the relevant requirements of Council's *Subdivision Manual*, Council's *Site Access and Parking Code* (2014) and Australian Standards (AS2890);
- the proposed development's accesses are to be provided in accordance with Council's standard drawing (S.D.011);
- any vehicle hold points near the accesses are to be located outside of the minimum queueing requirement;
- each access location has adequate available sight distance that is unlikely to result in adverse conditions for the area. The available sight distance at Access 3 is less than Council's requirements however is in excess of the minimum sight distance stipulated in Austroads. To further reduce crash risks near Access 3, a number of safety upgrades are recommended consistent with the Bitzios Consulting Road Safety Evaluation of Kyogle Road;
- the amenity of the surrounding area is considered to remain unaffected and will not result in any significant adverse traffic impacts or impacts to internal or surrounding land uses, given the function and environmental capacity of Kyogle Road, rural nature of the proposal and mitigation measures proposed;
- due to the rural setting there is limited pedestrian access and connectivity to the external network. The proposed development will however provide sufficient pedestrian connections internal to the site and to the nearby bus stop on Kyogle Road near Waratah Court (e.g. at Sphynx Rock Café). No further pedestrian connections are deemed necessary;
- service and refuse collection will be undertaken at the three (3) access locations with full on-site manoeuvring provided; and
- to facilitate school bus access, it is recommended that a dedicated pick-up and set-down area or common collection point be provided at the one of the accesses.

Based on the above assessment, it is concluded that there are no significant traffic or transport impacts associated with the proposed development to preclude its approval and relevant conditioning on transport planning grounds.

APPENDIX A

PROPOSED DEVELOPMENT PLANS



PLANIT CONSULTING

PROJECT TITLE
NIGHTCAP RURAL LAND SHARING COMMUNITIES CONCEPT

DRAWING TITLE
STAGING PLAN

BASE ISSUED BY

SCALE
REFER TO SCALE BAR

DESIGN
JI

DRAWN
JI

DATE
29/07/2020

CHECKED
DM

DRAW NO
1

SHEET NO
1

1	27/11/19	STAGING PLAN	JI
2	29/07/20	STAGING PLAN	SW

LEGEND

- SITE BOUNDARIES
- VILLAGE CENTRE | 44.34HA
- DEVELOPABLE AREAS | 318HA
- ENVIRONMENTAL PROTECTION / REHABILITATION AREAS | 541HA
- OPEN SPACE | 240HA
- ENVIRONMENTAL LINKAGES /PROPOSED REHABILITATION AREAS | 96HA
- POTENTIAL DAM INUNDATION AREA | 329HA
- INDICATIVE LOCATION OF COMMUNITY FACILITIES | 15HA
- AMPHITHEATRE BUILDING
- POTENTIAL COMMUNITY BUILDINGS
- ROAD NETWORK
- INDICATIVE DWELLING PLOT

CONCEPT RLSC DETAIL

LOT #	AREA (HA)	RLSC DWELLING PLOTS
1	44.34	
2	138	36
3	260	62
4 EXISTING	90.82	24
5	66	18
6	210	54
7	154	40
8	194	50
9	210	54
10	175	45
11	40.00	9
TOTAL	1584.3	392

NOTE: AREAS EXCLUDE CROWN ROAD RESERVES

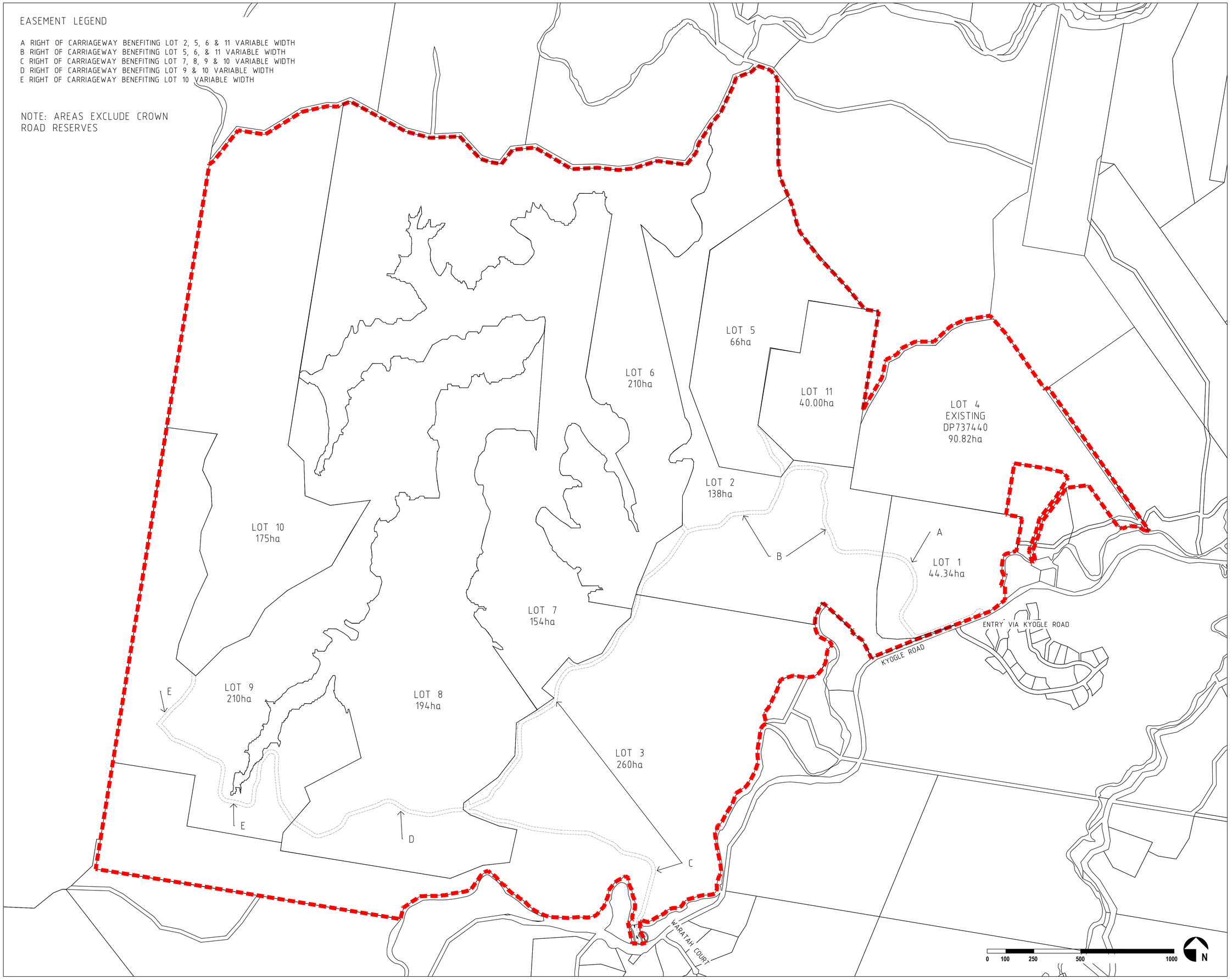
Level 1 2247 Gold Coast Hwy
Nobby Beach
PO Box 206 QLD 4218

Telephone: 07 5526 1500
Fax: 07 5526 1502
Email: admin@planitconsulting.com.au

EASEMENT LEGEND

A RIGHT OF CARRIAGEWAY BENEFITING LOT 2, 5, 6 & 11 VARIABLE WIDTH
B RIGHT OF CARRIAGEWAY BENEFITING LOT 5, 6, & 11 VARIABLE WIDTH
C RIGHT OF CARRIAGEWAY BENEFITING LOT 7, 8, 9 & 10 VARIABLE WIDTH
D RIGHT OF CARRIAGEWAY BENEFITING LOT 9 & 10 VARIABLE WIDTH
E RIGHT OF CARRIAGEWAY BENEFITING LOT 10 VARIABLE WIDTH

NOTE: AREAS EXCLUDE CROWN ROAD RESERVES



PLANIT CONSULTING

PROJECT TITLE
NIGHTCAP RURAL LAND SHARING COMMUNITIES CONCEPT

DRAWING TITLE
SUBDIVISION PLAN

BASE ISSUED BY

SCALE
REFER TO SCALE BAR

DESIGN
JI

DRAWN
JI

DATE
29/07/2020

CHECKED
DM

DRAW NO
1

SHEET NO
1

1	27/11/19	SUBDIVISION PLAN	JI
2	29/07/20	SUBDIVISION PLAN	SW

LEGEND

SITE BOUNDARIES
EASEMENT
LOT BOUNDARIES

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APPENDIX B

TDC TUBE COUNT TRAFFIC SURVEYS

Kyogle Rd Automatic Report

Site Name - Kyogle Rd Site 1
Description - Between Mandalay Rd & Mebbin Dr
Direction - Eastbound

Tuesday, 26 February 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	0	0	0	0	-	-
0030	1	1	0	0	85.5	-
0045	0	0	0	0	-	-
0100	1	0	0	1	78.7	-
0115	1	0	1	0	73	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	1	0	0	1	85	-
0315	1	0	0	1	86	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	1	1	0	0	80	-
0415	0	0	0	0	-	-
0430	1	1	0	0	85.7	-
0445	1	1	0	0	82.3	-
0500	2	2	0	0	81	-
0515	4	3	0	1	81.9	-
0530	6	6	0	0	91.2	-
0545	3	2	0	1	89.1	-
0600	7	7	0	0	85.4	-
0615	4	4	0	0	83	-
0630	4	4	0	0	88.5	-
0645	5	5	0	0	93	-
0700	6	6	0	0	86.9	-
0715	8	8	0	0	89.5	-
0730	16	15	1	0	82.8	93.2
0745	11	8	1	2	81	97.3
0800	15	14	1	0	87.1	104.9
0815	11	8	3	0	89.3	107.6
0830	13	9	2	2	86.8	100.7
0845	13	13	0	0	90.9	107.8
0900	15	15	0	0	86.5	96
0915	19	17	2	0	80.9	95.2
0930	10	10	0	0	81	-
0945	13	12	0	1	75.5	93.3
1000	17	14	0	3	84.6	97.2
1015	14	14	0	0	82.3	89.8
1030	14	11	1	2	84.4	99.4
1045	8	7	1	0	76.6	-
1100	12	11	1	0	79.3	89.2

1115	15	13	0	2	84.8	99.2
1130	24	24	0	0	80.1	86.2
1145	10	9	0	1	83.9	-
1200	8	6	2	0	79.2	-
1215	14	14	0	0	88.7	102.7
1230	18	16	1	1	83	96
1245	5	5	0	0	81.6	-
1300	17	16	0	1	78.6	85.4
1315	18	18	0	0	80.2	91.8
1330	13	13	0	0	83.8	97.1
1345	17	16	1	0	79.4	91.2
1400	12	12	0	0	78	87.6
1415	13	10	1	2	76.8	85.2
1430	22	15	4	3	77	88.7
1445	16	16	0	0	84.4	101.4
1500	14	10	3	1	80.7	86.4
1515	14	13	1	0	78.2	87.9
1530	15	12	3	0	84.4	95
1545	23	18	4	1	86.5	104.8
1600	18	16	2	0	83.1	90.3
1615	20	18	2	0	80.4	88
1630	12	11	1	0	79.8	86.3
1645	12	12	0	0	86.2	99.5
1700	15	15	0	0	84.8	97.1
1715	11	11	0	0	84.1	94
1730	12	10	2	0	79.1	98.7
1745	8	8	0	0	84.6	-
1800	14	13	1	0	87.9	104.3
1815	8	8	0	0	81.8	-
1830	6	4	2	0	81.2	-
1845	5	5	0	0	78	-
1900	2	2	0	0	77	-
1915	4	4	0	0	95	-
1930	3	3	0	0	87.9	-
1945	2	2	0	0	71.8	-
2000	2	2	0	0	78.2	-
2015	6	6	0	0	84.3	-
2030	3	2	0	1	87.6	-
2045	1	1	0	0	92.8	-
2100	0	0	0	0	-	-
2115	2	2	0	0	80.4	-
2130	1	1	0	0	81	-
2145	5	3	1	1	89.8	-
2200	3	2	1	0	94.5	-
2215	1	1	0	0	69.2	-
2230	1	1	0	0	94.9	-
2245	0	0	0	0	-	-
2300	2	1	1	0	67.8	-
2315	0	0	0	0	-	-
2330	1	1	0	0	106.2	-
2345	0	0	0	0	-	-
07-09	**93**	**81**	**8**	**4**	**86.6**	**101.8**
09-16	**410**	**367**	**25**	**18**	**81.6**	**92.5**
16-18	**108**	**101**	**7**	**0**	**82.6**	**91.8**
00-00	**726**	**650**	**47**	**29**	**83**	**93.2**

Kyogle Rd Automatic Report

TDC
Traffic Data & Control

Site Name - Kyogle Rd Site 1
Description - Between Mandalay Rd & Mebbin Dr
Direction - Eastbound

Wednesday, 27 February 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	0	0	0	0	-	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	1	0	0	1	71	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	1	0	0	1	78.8	-
0300	0	0	0	0	-	-
0315	1	0	1	0	81.5	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	2	1	0	1	83.3	-
0415	0	0	0	0	-	-
0430	0	0	0	0	-	-
0445	0	0	0	0	-	-
0500	1	1	0	0	96.3	-
0515	1	1	0	0	76	-
0530	5	5	0	0	91.7	-
0545	9	8	0	1	90.3	-
0600	9	8	1	0	91.7	-
0615	9	8	0	1	81.7	-
0630	3	2	1	0	80.2	-
0645	8	8	0	0	85.5	-
0700	8	7	0	1	91.6	-
0715	9	9	0	0	97.1	-
0730	13	11	2	0	90.2	104.9
0745	14	14	0	0	87.1	95.9
0800	16	13	1	2	84.7	97.7
0815	17	13	2	2	81.9	93.9
0830	16	15	1	0	82.6	95.3
0845	14	14	0	0	87.4	98.2
0900	15	14	0	1	83.2	96.7
0915	16	13	3	0	85.9	94.3
0930	14	12	1	1	79.6	91.7
0945	14	14	0	0	80.9	87.3
1000	16	16	0	0	85.2	100.7
1015	10	9	0	1	63.5	-
1030	15	14	1	0	83.6	94.5
1045	12	12	0	0	89.1	99.4
1100	12	10	2	0	60.2	83.1

1115	13	11	0	2	83.3	103
1130	11	10	1	0	83.7	93.2
1145	12	12	0	0	82.5	97.9
1200	14	14	0	0	78.3	91.9
1215	18	17	0	1	80.7	90.4
1230	16	14	2	0	83.1	93.7
1245	15	13	1	1	81.3	86.3
1300	16	16	0	0	80.9	89.8
1315	15	13	2	0	80.5	88.7
1330	11	9	2	0	88.7	114
1345	16	15	1	0	79.8	90.6
1400	12	11	0	1	78.2	94.1
1415	14	14	0	0	80.9	93.6
1430	18	15	3	0	83.3	95.3
1445	12	12	0	0	82.3	99.2
1500	14	13	1	0	82.9	94.6
1515	22	21	1	0	76.2	84
1530	15	11	4	0	84.5	100.4
1545	18	16	2	0	85.7	102.3
1600	19	17	1	1	82.5	88.9
1615	17	15	1	1	79	88.6
1630	15	13	1	1	79.3	88
1645	14	13	1	0	85.5	96
1700	13	13	0	0	87.4	97.8
1715	14	14	0	0	86.7	97.7
1730	11	10	1	0	78.5	92.6
1745	5	5	0	0	84.3	-
1800	8	8	0	0	83.3	-
1815	9	9	0	0	78.5	-
1830	9	9	0	0	83.2	-
1845	4	3	1	0	86.9	-
1900	5	4	1	0	85	-
1915	4	4	0	0	91.4	-
1930	4	4	0	0	90.2	-
1945	3	2	1	0	80.2	-
2000	0	0	0	0	-	-
2015	3	3	0	0	68.6	-
2030	0	0	0	0	-	-
2045	0	0	0	0	-	-
2100	2	1	0	1	85.5	-
2115	2	2	0	0	76.8	-
2130	0	0	0	0	-	-
2145	2	2	0	0	87.2	-
2200	2	1	0	1	67.3	-
2215	0	0	0	0	-	-
2230	0	0	0	0	-	-
2245	1	1	0	0	87	-
2300	3	3	0	0	64.8	-
2315	0	0	0	0	-	-
2330	1	1	0	0	85.6	-
2345	1	1	0	0	77	-
07-09	**107**	**96**	**6**	**5**	**86.8**	**99.1**
09-16	**406**	**371**	**27**	**8**	**81.2**	**92**
16-18	**108**	**100**	**5**	**3**	**82.7**	**92.7**
00-00	**734**	**667**	**44**	**23**	**82.6**	**94**

Kyogle Rd Automatic Report

TDC
Traffic Data & Control

Site Name - Kyogle Rd Site 1
Description - Between Mandalay Rd & Mebbin Dr
Direction - Eastbound

Thursday, 28 February 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	1	1	0	0	75.4	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	1	1	0	0	88.5	-
0115	2	1	0	1	80.4	-
0130	3	1	1	1	82.8	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	1	0	0	1	75.7	-
0230	1	0	0	1	80.6	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	1	1	0	0	83.2	-
0330	0	0	0	0	-	-
0345	1	1	0	0	73.1	-
0400	1	1	0	0	83	-
0415	1	1	0	0	88.1	-
0430	4	4	0	0	77.3	-
0445	1	0	1	0	80	-
0500	0	0	0	0	-	-
0515	2	2	0	0	93.9	-
0530	5	5	0	0	84.3	-
0545	12	11	0	1	76.8	91.4
0600	9	8	0	1	82.1	-
0615	5	5	0	0	81	-
0630	3	2	0	1	83.3	-
0645	8	6	1	1	83.9	-
0700	6	6	0	0	91.6	-
0715	12	11	0	1	87	102.6
0730	11	11	0	0	84.9	95.5
0745	11	9	0	2	77.5	90
0800	5	5	0	0	92.8	-
0815	13	10	3	0	75.7	83.8
0830	8	6	1	1	83.6	-
0845	19	18	0	1	81.1	89.8
0900	7	7	0	0	77	-
0915	17	14	2	1	80	87.7
0930	15	15	0	0	83.8	92.2
0945	11	11	0	0	83	97.5
1000	16	13	2	1	81.1	87.4
1015	11	10	0	1	82.4	93.2
1030	18	18	0	0	80.5	96.8
1045	9	7	2	0	82.8	-
1100	14	14	0	0	79.9	93.3

1115	17	15	0	2	86.2	96.9
1130	13	11	2	0	80.3	91.4
1145	13	10	2	1	76.5	84.1
1200	18	15	3	0	81.5	88.9
1215	9	9	0	0	83.9	-
1230	10	10	0	0	92.6	-
1245	13	11	2	0	76.1	85.7
1300	15	13	2	0	81.4	98.1
1315	21	20	1	0	82.6	91.8
1330	13	13	0	0	85	94.3
1345	17	14	3	0	79.4	88.2
1400	16	15	1	0	79.3	90.4
1415	15	14	1	0	84.8	103.5
1430	10	9	1	0	84	-
1445	21	20	1	0	78.6	90.4
1500	18	18	0	0	78.8	85
1515	11	10	1	0	81.6	95
1530	15	12	3	0	84.4	97.9
1545	23	20	3	0	83.6	93.4
1600	16	15	1	0	80.9	88.4
1615	13	11	2	0	86.5	119.2
1630	14	12	2	0	80	101.7
1645	21	20	1	0	81.5	94.4
1700	9	8	0	1	79.5	-
1715	15	14	1	0	90.8	100.9
1730	10	10	0	0	79.7	-
1745	5	5	0	0	88.4	-
1800	11	10	0	1	80.6	98.1
1815	6	6	0	0	90.9	-
1830	5	5	0	0	86.4	-
1845	12	11	1	0	87.7	103.9
1900	4	4	0	0	81.8	-
1915	6	4	2	0	78.3	-
1930	4	4	0	0	86.8	-
1945	4	4	0	0	83.5	-
2000	4	4	0	0	96.5	-
2015	2	2	0	0	83	-
2030	4	4	0	0	83.2	-
2045	1	1	0	0	76.3	-
2100	1	1	0	0	114	-
2115	2	2	0	0	84.4	-
2130	4	4	0	0	79.7	-
2145	0	0	0	0	-	-
2200	1	1	0	0	101.9	-
2215	2	2	0	0	80.4	-
2230	1	1	0	0	85.8	-
2245	0	0	0	0	-	-
2300	1	1	0	0	85.9	-
2315	0	0	0	0	-	-
2330	0	0	0	0	-	-
2345	0	0	0	0	-	-
07-09	**85**	**76**	**4**	**5**	**82.8**	**95.4**
09-16	**406**	**368**	**32**	**6**	**81.7**	**91.1**
16-18	**103**	**95**	**7**	**1**	**83.2**	**95.8**
00-00	**731**	**661**	**49**	**21**	**82.4**	**92.5**

Kyogle Rd Automatic Report

Site Name - Kyogle Rd Site 1
Description - Between Mandalay Rd & Mebbin Dr
Direction - Eastbound

Friday, 1 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	0	0	0	0	-	-
0115	0	0	0	0	-	-
0130	1	0	0	1	69.4	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	2	2	0	0	81.8	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	1	1	0	0	80.9	-
0330	1	0	0	1	82	-
0345	0	0	0	0	-	-
0400	1	1	0	0	87.3	-
0415	1	1	0	0	77	-
0430	1	0	0	1	69.1	-
0445	0	0	0	0	-	-
0500	2	2	0	0	86	-
0515	3	2	0	1	91.5	-
0530	6	6	0	0	88.5	-
0545	6	5	0	1	87.2	-
0600	8	8	0	0	88.8	-
0615	5	5	0	0	83.1	-
0630	1	1	0	0	86.7	-
0645	6	4	1	1	82.4	-
0700	7	7	0	0	82.4	-
0715	12	10	2	0	83.6	90.8
0730	13	11	2	0	88.9	98.2
0745	12	11	0	1	83.2	95.4
0800	17	16	1	0	86.6	99.7
0815	9	7	2	0	84.1	-
0830	15	15	0	0	82.7	91.6
0845	11	11	0	0	83.1	93.8
0900	10	10	0	0	84.8	-
0915	16	14	1	1	81.7	94.1
0930	15	13	2	0	84	94.5
0945	10	10	0	0	83.2	-
1000	17	15	1	1	81.7	89.6
1015	7	7	0	0	80.9	-
1030	16	15	1	0	79.6	86.6
1045	17	16	1	0	81.5	93.8
1100	4	4	0	0	73.6	-

1115	13	13	0	0	81.4	93.5
1130	22	19	1	2	81.6	96.4
1145	22	22	0	0	83.5	93.7
1200	11	11	0	0	85.3	95.2
1215	17	17	0	0	83.2	93.5
1230	21	19	1	1	80.4	86.6
1245	11	11	0	0	78.5	90.5
1300	18	18	0	0	80	86.3
1315	17	16	1	0	85.2	97.9
1330	18	15	3	0	82.8	99.5
1345	12	9	3	0	82.2	94
1400	17	17	0	0	85.6	97.4
1415	15	15	0	0	80	88.4
1430	22	20	2	0	80.4	88.3
1445	14	13	1	0	82.1	92.6
1500	21	21	0	0	80.9	89.2
1515	18	17	0	1	83.8	99.3
1530	14	11	3	0	83	91.7
1545	23	21	2	0	80.9	90.4
1600	31	28	2	1	81.2	86.4
1615	27	25	2	0	81.8	88.2
1630	20	19	1	0	82.9	90.8
1645	15	15	0	0	83.5	97.4
1700	19	17	2	0	84.8	91.1
1715	12	12	0	0	78.3	96.3
1730	21	20	1	0	86	102.1
1745	16	15	1	0	90.5	107.7
1800	12	12	0	0	86.1	100
1815	9	7	2	0	82.2	-
1830	3	3	0	0	79.1	-
1845	10	9	0	1	79.7	-
1900	7	7	0	0	87.1	-
1915	2	2	0	0	88.7	-
1930	6	6	0	0	76.5	-
1945	5	5	0	0	74.8	-
2000	5	5	0	0	82.3	-
2015	0	0	0	0	-	-
2030	2	1	1	0	81.7	-
2045	1	1	0	0	81.9	-
2100	1	1	0	0	72.2	-
2115	1	1	0	0	85.9	-
2130	3	3	0	0	85	-
2145	3	3	0	0	87.4	-
2200	2	2	0	0	79.5	-
2215	2	2	0	0	84.5	-
2230	0	0	0	0	-	-
2245	2	2	0	0	73.5	-
2300	0	0	0	0	-	-
2315	1	1	0	0	69.5	-
2330	1	1	0	0	123.2	-
2345	0	0	0	0	-	-
07-09	**96**	**88**	**7**	**1**	**84.6**	**93.9**
09-16	**438**	**409**	**23**	**6**	**82**	**90.4**
16-18	**161**	**151**	**9**	**1**	**83.5**	**93.3**
00-00	**818**	**760**	**43**	**15**	**82.8**	**92.2**

Kyogle Rd Automatic Report

TDC
Traffic Data & Control

Site Name - Kyogle Rd Site 1
Description - Between Mandalay Rd & Mebbin Dr
Direction - Eastbound

Saturday, 2 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	1	1	0	0	86.2	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	0	0	0	0	-	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	1	1	0	0	93.1	-
0415	1	1	0	0	79.1	-
0430	2	0	0	2	87	-
0445	1	1	0	0	87.6	-
0500	0	0	0	0	-	-
0515	1	1	0	0	89.5	-
0530	1	1	0	0	85.1	-
0545	4	4	0	0	85.1	-
0600	2	2	0	0	88.6	-
0615	1	1	0	0	79.1	-
0630	3	3	0	0	73.3	-
0645	3	3	0	0	92.2	-
0700	3	3	0	0	89.6	-
0715	3	2	1	0	88.4	-
0730	5	5	0	0	73.3	-
0745	7	7	0	0	81.6	-
0800	14	13	1	0	84.2	92.9
0815	13	13	0	0	89.2	106.9
0830	11	11	0	0	88.4	101.7
0845	11	11	0	0	81.1	85.8
0900	9	9	0	0	88.4	-
0915	13	11	2	0	80.4	93.4
0930	13	12	1	0	87.6	97.9
0945	11	11	0	0	84.4	92.4
1000	29	26	2	1	79.8	91.2
1015	12	11	0	1	77.3	84.9
1030	20	20	0	0	81.4	91.3
1045	18	18	0	0	83.8	94.1
1100	18	18	0	0	82.6	90.5

1115	19	19	0	0	85.7	98.1
1130	14	13	1	0	80.9	87.8
1145	23	23	0	0	84.8	94.2
1200	10	10	0	0	85.8	-
1215	12	12	0	0	74.5	85.9
1230	22	20	2	0	80.7	85.9
1245	19	19	0	0	80	88.4
1300	18	18	0	0	82.9	92
1315	18	16	2	0	77.1	88
1330	29	28	1	0	83.8	94.3
1345	23	22	1	0	80.3	90.1
1400	26	26	0	0	83.6	95.9
1415	16	16	0	0	83.9	95.3
1430	19	19	0	0	83.8	88.4
1445	25	25	0	0	81.7	90
1500	19	19	0	0	79.6	85.1
1515	33	32	1	0	79.9	94.1
1530	17	17	0	0	74.1	81.5
1545	16	16	0	0	76.6	90
1600	17	17	0	0	80.4	92.5
1615	20	20	0	0	79.5	85
1630	21	21	0	0	79.5	87.9
1645	12	11	1	0	88	97.5
1700	13	11	0	2	81	92.8
1715	17	16	1	0	81.3	89.2
1730	12	11	1	0	78.7	88
1745	14	14	0	0	78.5	87.7
1800	17	16	1	0	81.8	88.2
1815	10	10	0	0	85.1	-
1830	7	7	0	0	77.9	-
1845	4	4	0	0	76.5	-
1900	2	2	0	0	79	-
1915	3	3	0	0	77	-
1930	8	8	0	0	70.9	-
1945	3	3	0	0	72.6	-
2000	6	6	0	0	77.4	-
2015	1	1	0	0	76.8	-
2030	0	0	0	0	-	-
2045	5	5	0	0	87.1	-
2100	1	1	0	0	66.4	-
2115	0	0	0	0	-	-
2130	1	1	0	0	74.9	-
2145	2	2	0	0	81.4	-
2200	1	1	0	0	76.8	-
2215	1	1	0	0	65.4	-
2230	1	1	0	0	78.3	-
2245	4	4	0	0	82.1	-
2300	0	0	0	0	-	-
2315	0	0	0	0	-	-
2330	2	2	0	0	78.8	-
2345	2	2	0	0	97.6	-
07-09	**67**	**65**	**2**	**0**	**84.7**	**94.5**
09-16	**521**	**506**	**13**	**2**	**81.5**	**91.4**
16-18	**126**	**121**	**3**	**2**	**80.6**	**89.5**
00-00	**816**	**791**	**19**	**6**	**81.5**	**91.3**

Kyogle Rd Automatic Report

TDC
Traffic Data & Control

Site Name - Kyogle Rd Site 1
Description - Between Mandalay Rd & Mebbin Dr
Direction - Eastbound

Sunday, 3 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	1	1	0	0	80.1	-
0015	0	0	0	0	-	-
0030	2	1	1	0	87.7	-
0045	0	0	0	0	-	-
0100	2	2	0	0	74.4	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	1	1	0	0	97.3	-
0200	0	0	0	0	-	-
0215	0	0	0	0	-	-
0230	0	0	0	0	-	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	0	0	0	0	-	-
0330	0	0	0	0	-	-
0345	0	0	0	0	-	-
0400	0	0	0	0	-	-
0415	1	0	0	1	74	-
0430	0	0	0	0	-	-
0445	0	0	0	0	-	-
0500	0	0	0	0	-	-
0515	0	0	0	0	-	-
0530	0	0	0	0	-	-
0545	5	5	0	0	81.5	-
0600	1	1	0	0	81.5	-
0615	1	1	0	0	81.5	-
0630	3	3	0	0	83.4	-
0645	3	2	1	0	81.1	-
0700	1	1	0	0	64.2	-
0715	4	4	0	0	80.2	-
0730	2	2	0	0	103.3	-
0745	3	3	0	0	76.5	-
0800	7	6	1	0	85.5	-
0815	8	8	0	0	82.5	-
0830	5	5	0	0	82.4	-
0845	8	8	0	0	76.1	-
0900	12	11	1	0	78.7	92
0915	15	15	0	0	82.5	86.6
0930	9	9	0	0	80.5	-
0945	26	24	2	0	70	80.2
1000	28	26	2	0	68.2	86.4
1015	11	10	1	0	82.2	91.9
1030	17	17	0	0	76.6	85.3
1045	18	18	0	0	76.7	84.6
1100	14	14	0	0	78.7	86.9

1115	15	14	1	0	82.1	90.1
1130	25	25	0	0	80.7	91.4
1145	15	15	0	0	83.6	95.5
1200	21	21	0	0	78.8	83.7
1215	28	27	1	0	78.2	88
1230	21	21	0	0	80.3	89.2
1245	23	23	0	0	84	96.9
1300	23	23	0	0	80	86.5
1315	28	28	0	0	84.1	96.9
1330	23	23	0	0	86	98.2
1345	20	20	0	0	88.6	98.2
1400	28	27	1	0	84.5	93.6
1415	28	27	1	0	81.6	91.1
1430	28	28	0	0	81.3	95
1445	19	18	1	0	87.2	94.1
1500	14	14	0	0	82.8	97.2
1515	20	19	0	1	78.4	90.6
1530	18	18	0	0	80	94.2
1545	16	16	0	0	79	82.3
1600	29	28	1	0	78.1	87.6
1615	20	18	2	0	86.4	104.3
1630	18	17	1	0	83.1	99
1645	15	13	0	2	75.8	83.8
1700	15	15	0	0	84.1	101.9
1715	12	12	0	0	84.3	93.4
1730	25	25	0	0	83.5	94.6
1745	11	10	1	0	72.9	86.4
1800	8	8	0	0	83.2	-
1815	12	12	0	0	80.1	92
1830	11	11	0	0	84.1	95.7
1845	9	7	1	1	82.7	-
1900	4	4	0	0	87	-
1915	2	2	0	0	85.2	-
1930	4	4	0	0	83.4	-
1945	10	10	0	0	87.3	-
2000	5	5	0	0	86.5	-
2015	3	3	0	0	88	-
2030	3	3	0	0	82.3	-
2045	3	3	0	0	93.7	-
2100	3	3	0	0	92.8	-
2115	0	0	0	0	-	-
2130	3	3	0	0	85.2	-
2145	3	3	0	0	82.5	-
2200	0	0	0	0	-	-
2215	0	0	0	0	-	-
2230	1	1	0	0	71.4	-
2245	1	1	0	0	77.9	-
2300	3	3	0	0	77.9	-
2315	0	0	0	0	-	-
2330	0	0	0	0	-	-
2345	0	0	0	0	-	-
07-09	**38**	**37**	**1**	**0**	**81.6**	**93.2**
09-16	**563**	**551**	**11**	**1**	**80.4**	**90.9**
16-18	**145**	**138**	**5**	**2**	**81.3**	**92.4**
00-00	**854**	**829**	**20**	**5**	**81**	**91.9**

Kyogle Rd Automatic Report

Site Name - Kyogle Rd Site 1
Description - Between Mandalay Rd & Mebbin Dr
Direction - Eastbound

Monday, 4 March 2019

Time	Total	Cars	Light Trucks	Heavy Trucks	Average Speed	85th %ile
0000	0	0	0	0	-	-
0015	0	0	0	0	-	-
0030	0	0	0	0	-	-
0045	0	0	0	0	-	-
0100	0	0	0	0	-	-
0115	0	0	0	0	-	-
0130	0	0	0	0	-	-
0145	0	0	0	0	-	-
0200	0	0	0	0	-	-
0215	1	1	0	0	85.1	-
0230	2	1	0	1	67.9	-
0245	0	0	0	0	-	-
0300	0	0	0	0	-	-
0315	1	0	0	1	73.5	-
0330	0	0	0	0	-	-
0345	1	1	0	0	113.4	-
0400	1	1	0	0	78.8	-
0415	0	0	0	0	-	-
0430	1	1	0	0	100.5	-
0445	3	1	1	1	85.4	-
0500	0	0	0	0	-	-
0515	3	3	0	0	86.6	-
0530	2	1	1	0	73.9	-
0545	2	2	0	0	88.4	-
0600	15	15	0	0	89.7	100.6
0615	7	6	0	1	76.2	-
0630	9	8	0	1	85.3	-
0645	8	7	1	0	89.7	-
0700	9	8	0	1	81.2	-
0715	15	15	0	0	86.5	95.6
0730	18	16	1	1	86.4	101.9
0745	12	12	0	0	81.9	94.8
0800	9	7	1	1	83.9	-
0815	17	13	3	1	80.2	90.3
0830	13	11	1	1	80.8	89.7
0845	10	8	0	2	83.2	-
0900	6	6	0	0	73.1	-
0915	13	10	2	1	79.3	89.9
0930	14	14	0	0	81.8	94.5
0945	13	11	1	1	84.6	111.9
1000	13	11	1	1	82.9	91.2
1015	15	14	1	0	83.6	100.1
1030	13	13	0	0	74.2	89.8
1045	14	13	1	0	77.1	86.4
1100	15	15	0	0	78.6	84

1115	16	15	1	0	79	89.9
1130	19	19	0	0	78.5	87.3
1145	13	11	1	1	80	89
1200	10	9	1	0	75.1	-
1215	14	12	2	0	78.5	90.5
1230	16	16	0	0	83	91.2
1245	12	12	0	0	77.1	85
1300	12	12	0	0	84.3	93.5
1315	18	16	2	0	73.7	82.9
1330	14	12	2	0	78	87.6
1345	16	15	1	0	80.8	101.2
1400	16	14	2	0	80.9	97.3
1415	14	13	1	0	78.5	89.4
1430	9	8	1	0	79.4	-
1445	18	18	0	0	73.1	81.2
1500	21	21	0	0	75.5	87.9
1515	13	12	1	0	69.7	89
1530	10	7	1	2	78.7	-
1545	15	13	2	0	80.7	92
1600	10	9	1	0	77.9	-
1615	19	18	1	0	79.2	87.3
1630	11	11	0	0	84.6	103.8
1645	15	14	1	0	83.9	98
1700	9	7	1	1	81.4	-
1715	19	18	1	0	82	90
1730	14	13	1	0	85.1	109
1745	4	4	0	0	84.4	-
1800	5	5	0	0	82.9	-
1815	7	7	0	0	86	-
1830	7	7	0	0	81.5	-
1845	7	6	1	0	82.3	-
1900	10	9	0	1	80.8	-
1915	1	0	1	0	85.4	-
1930	4	4	0	0	77.3	-
1945	3	2	1	0	72.4	-
2000	4	1	3	0	84.6	-
2015	3	3	0	0	90.3	-
2030	1	0	0	1	85	-
2045	1	1	0	0	59.4	-
2100	3	2	0	1	85.9	-
2115	4	3	1	0	88.2	-
2130	0	0	0	0	-	-
2145	1	1	0	0	82.8	-
2200	0	0	0	0	-	-
2215	0	0	0	0	-	-
2230	1	1	0	0	83.9	-
2245	0	0	0	0	-	-
2300	2	2	0	0	61.7	-
2315	1	0	0	1	83.8	-
2330	0	0	0	0	-	-
2345	0	0	0	0	-	-
07-09	**103**	**90**	**6**	**7**	**83.2**	**94**
09-16	**392**	**362**	**24**	**6**	**78.6**	**88.9**
16-18	**101**	**94**	**6**	**1**	**82.1**	**90**
00-00	**717**	**648**	**46**	**23**	**80.6**	**90.7**

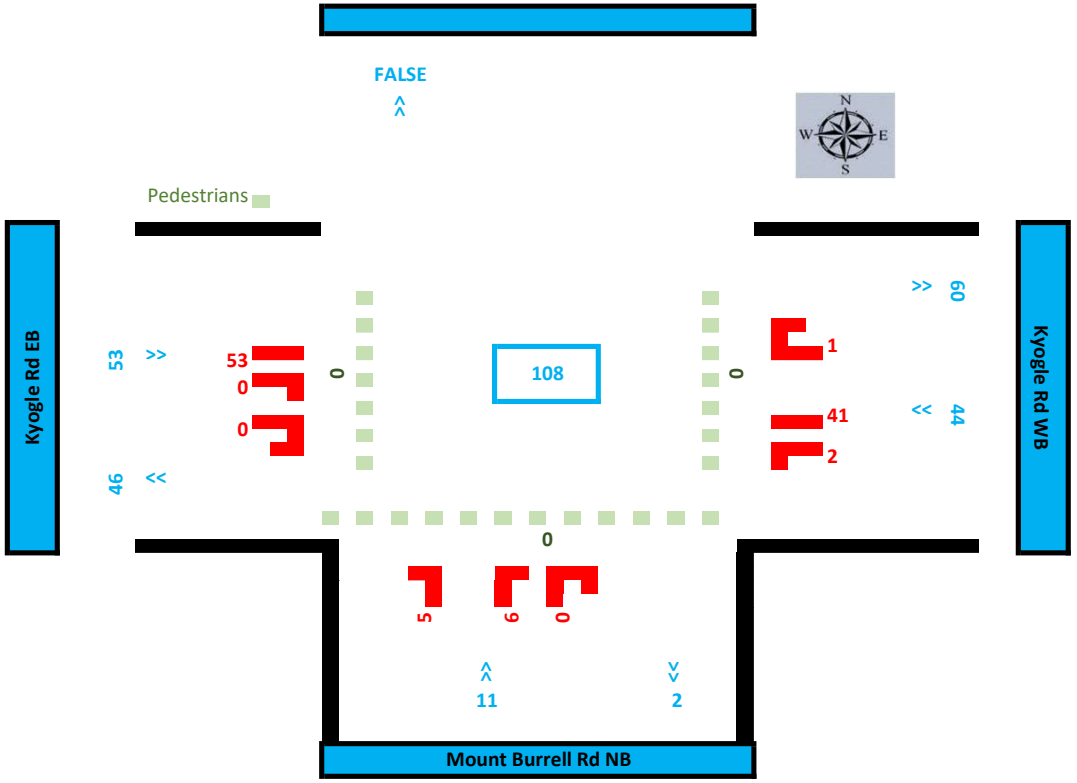
APPENDIX C

KYOGLE ROAD / MT BURRELL ROAD INTERSECTION

SURVEY

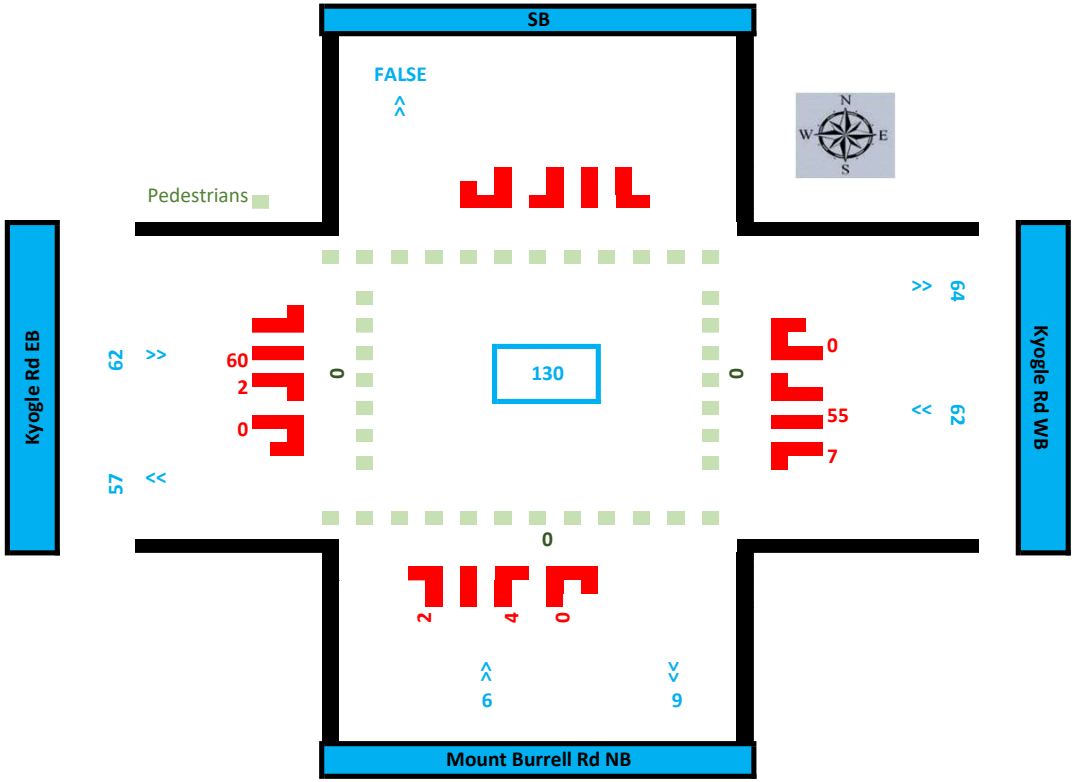
Turning Movement Count Summary

Site ID:	1
Location:	Kyogle Rd & Mount Burrell Rd, Mount Burrell
Date:	26-Feb-2019
Surveyed Time:	6:00 AM to 9:00 AM
Weather:	Fine
Data for hour starting:	7:30 AM to 8:30 AM
Vehicle Class:	ALL VEHICLES



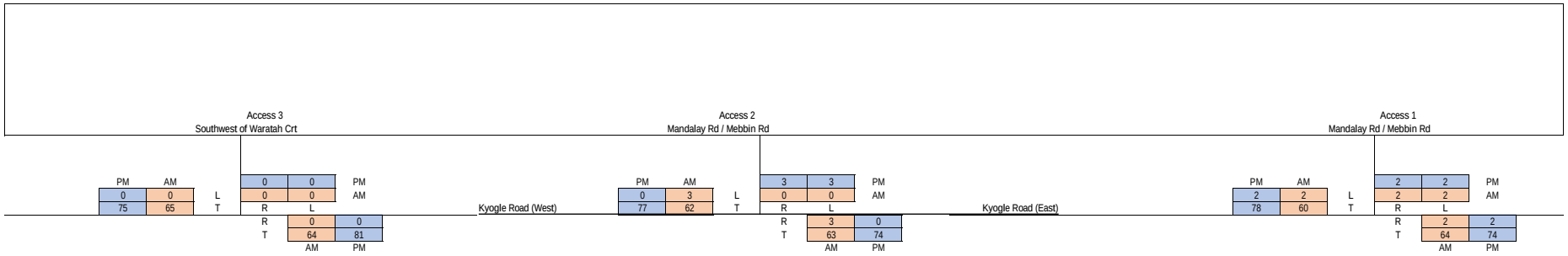
Turning Movement Count Summary

Site ID:	1
Location:	Kyogle Rd & Mount Burrell Rd, Mount Burrell
Date:	26-Feb-2019
Surveyed Time:	3:00 PM to 6:00 PM
Weather:	Fine
Data for hour starting:	4:00 PM to 5:00 PM
Vehicle Class:	ALL VEHICLES

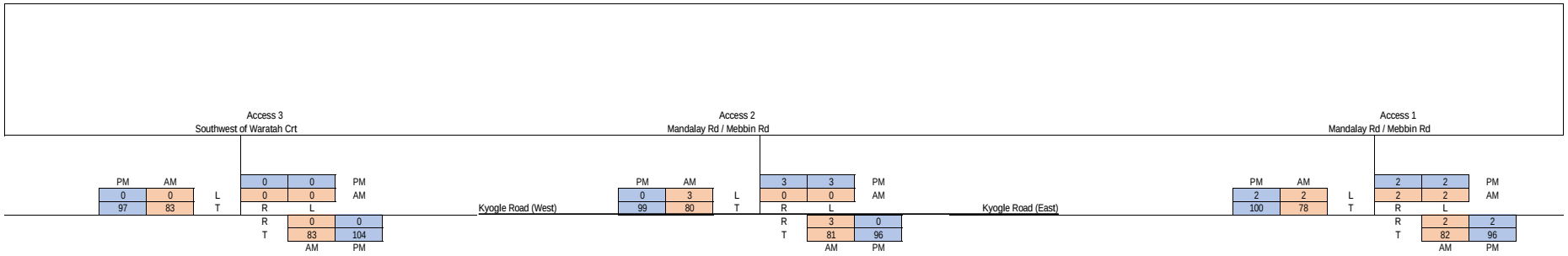


APPENDIX D

BACKGROUND TRAFFIC VOLUMES



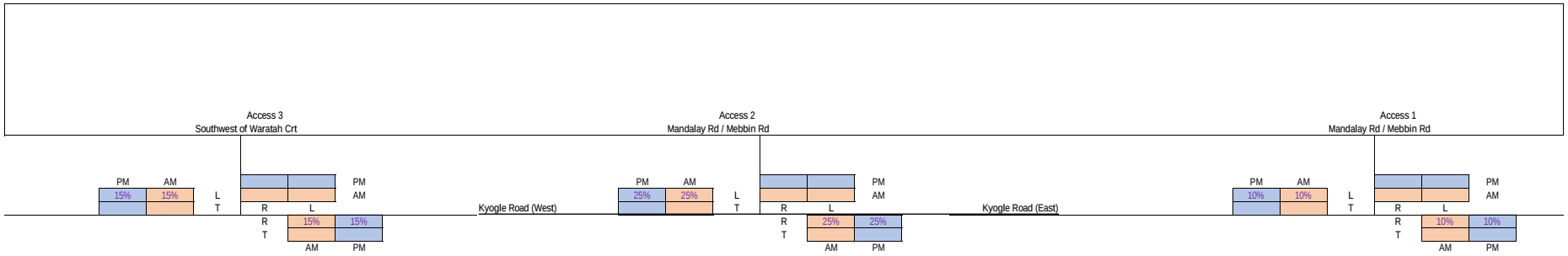
Appendix D
2020 Background Traffic
P3971 Nightcap Eco Village



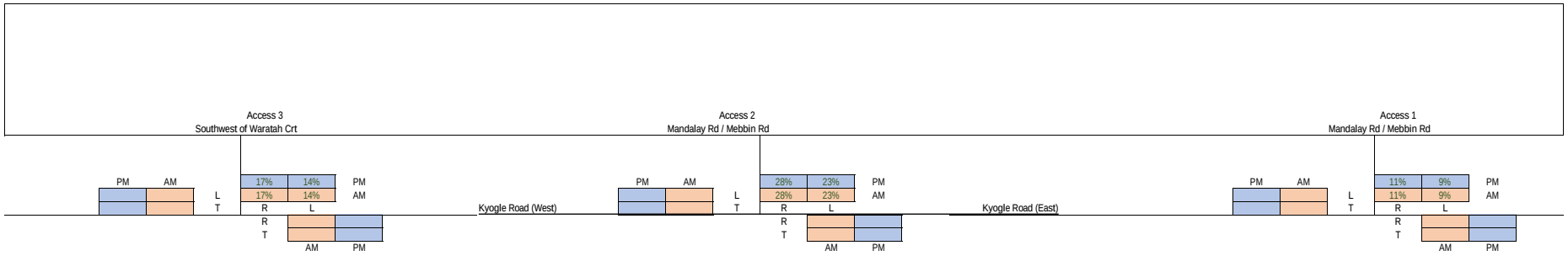
Appendix D
2030 Background Traffic
P3971 Nightcap Eco Village

APPENDIX E

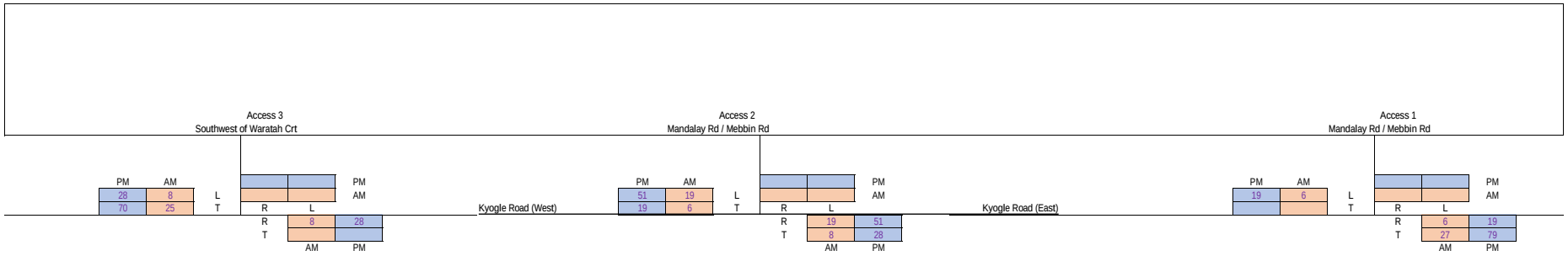
DEVELOPMENT'S TRAFFIC DISTRIBUTION AND ASSIGNMENT



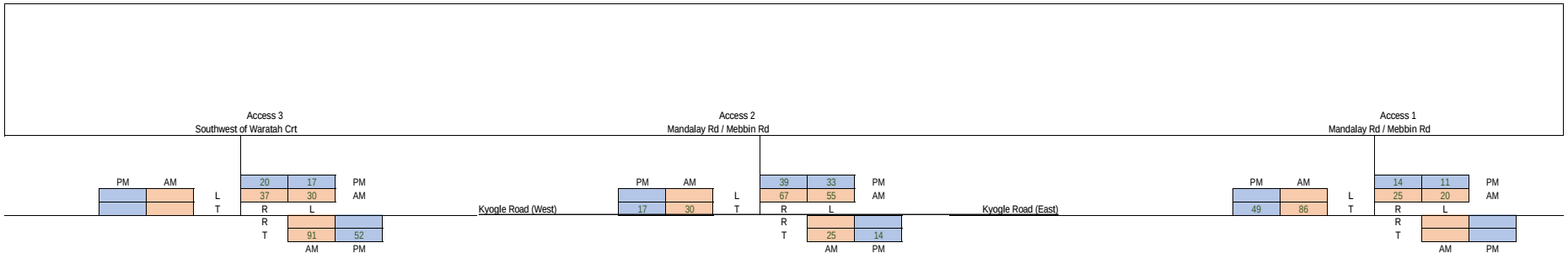
Appendix E
Distribution In
P3971 Nightcap Eco Village



Appendix E
Distribution Out
P3971 Nightcap Eco Village



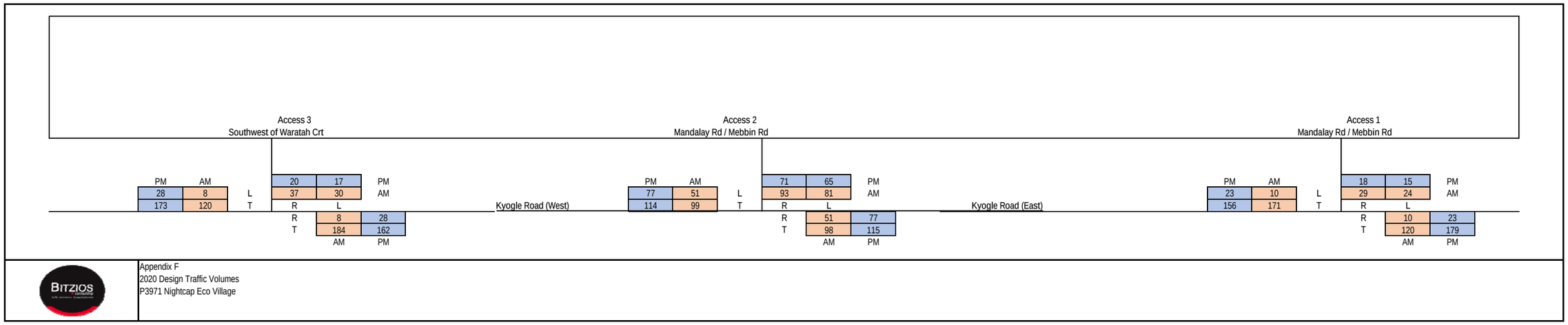
Appendix E
Assignment In
P3971 Nightcap Eco Village



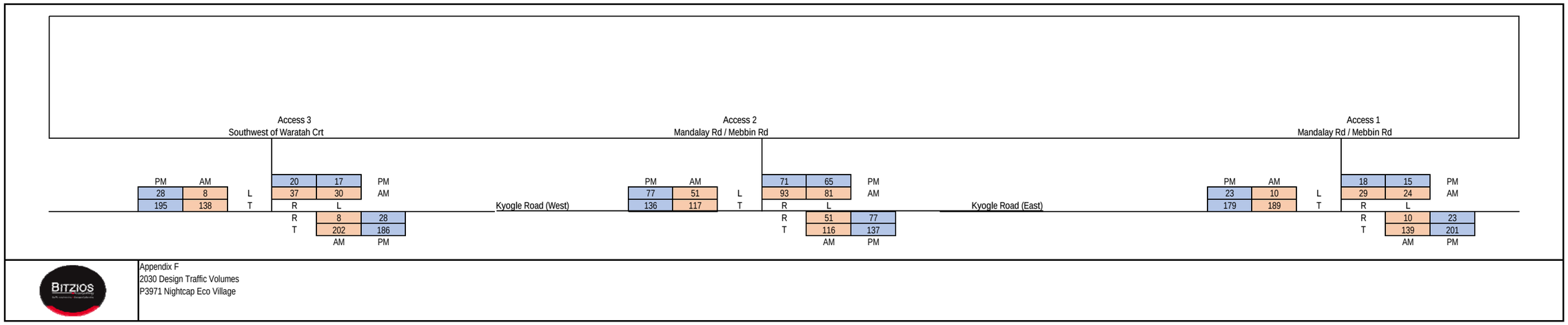
Appendix E
Assignment Out
P3971 Nightcap Eco Village

APPENDIX F

DESIGN TRAFFIC VOLUMES



Appendix F
2020 Design Traffic Volumes
P3971 Nightcap Eco Village

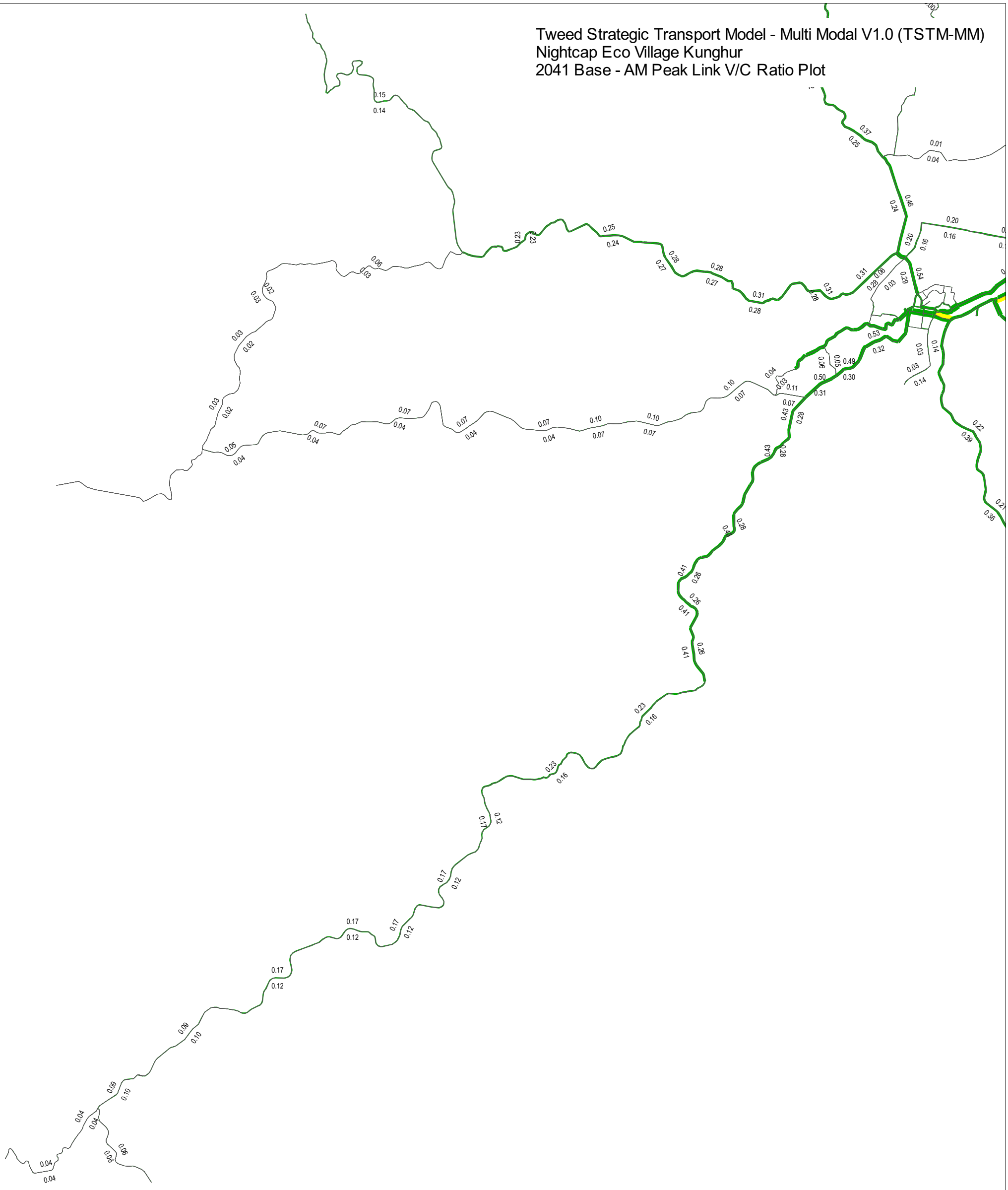


Appendix F
2030 Design Traffic Volumes
P3971 Nightcap Eco Village

APPENDIX G

COUNCIL'S STRATEGIC TRANSPORT MODEL OUTPUTS

Tweed Strategic Transport Model - Multi Modal V1.0 (TSTM-MM)
Nightcap Eco Village Kunghur
2041 Base - AM Peak Link V/C Ratio Plot



V/C Ratio <0.9
>0.9 & <1.0
>1.0 & <1.5
>1.5 & <2.0
> 2.0

BITZIOS consulting
traffic engineering ▪ transport planning

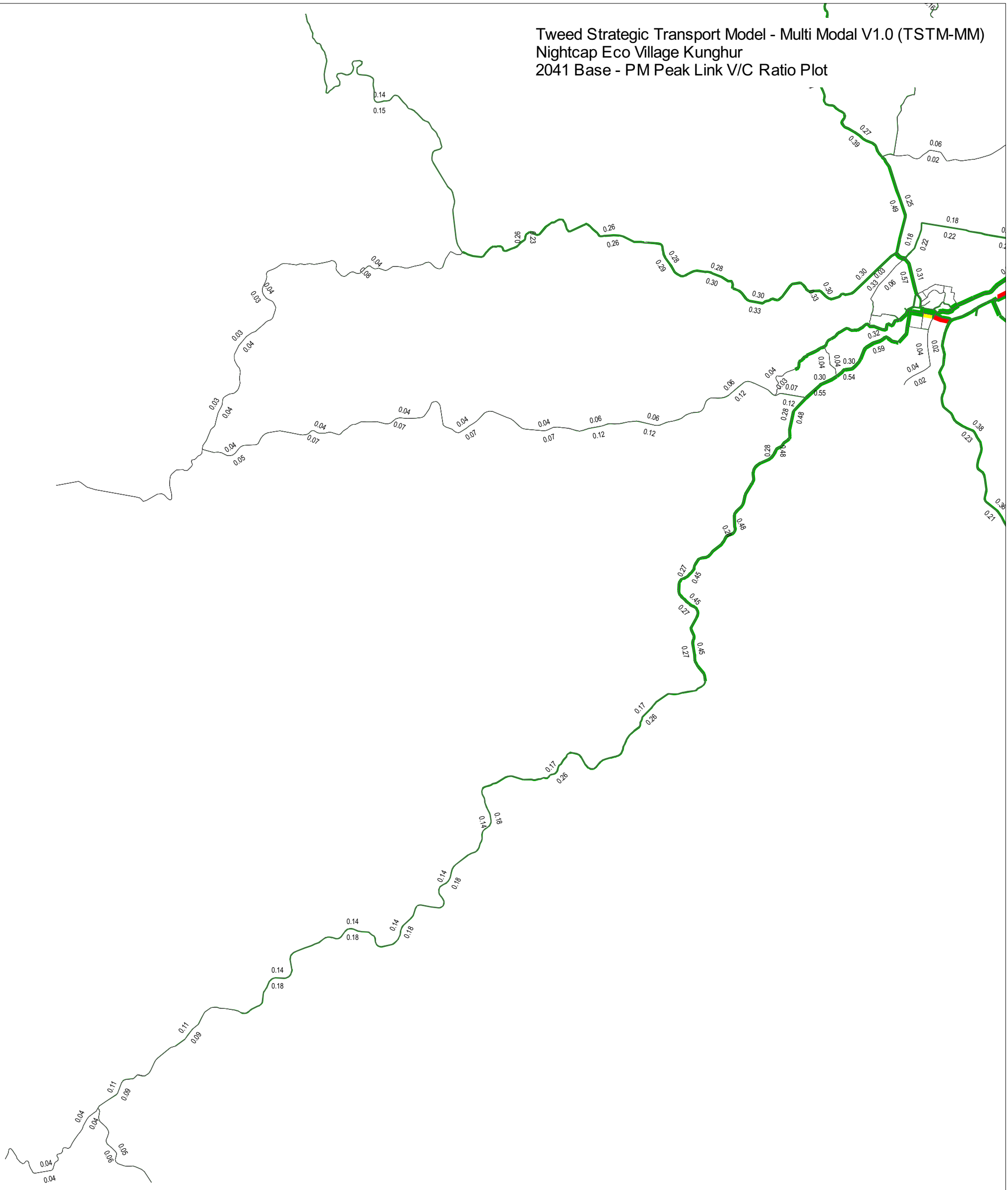
Tweed Strategic Transport Model - Multi Modal V1.0 (TSTM-MM)
Nightcap Eco Village Kunghur
2041 Base - AM Peak (07:00-09:00) Volumes

BITZIOS consulting

Tweed Strategic Transport Model - Multi Modal V1.0 (TSTM-MM)
Nightcap Eco Village Kunghur
2041 Base - Daily Volumes

BITZIOS consulting

Tweed Strategic Transport Model - Multi Modal V1.0 (TSTM-MM)
Nightcap Eco Village Kunghur
2041 Base - PM Peak Link V/C Ratio Plot



V/C Ratio <0.9
>0.9 & <1.0
>1.0 & <1.5
>1.5 & <2.0
> 2.0

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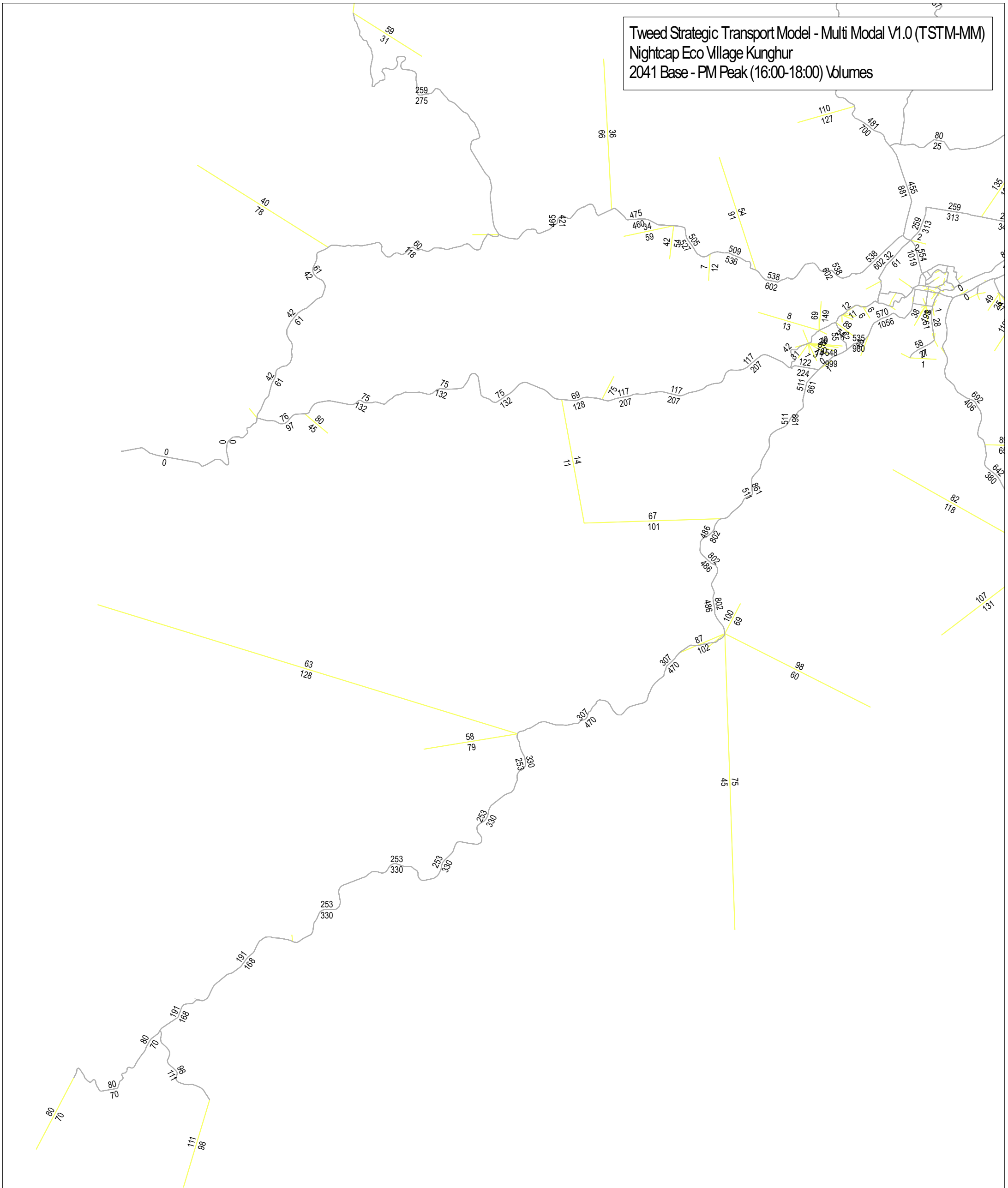
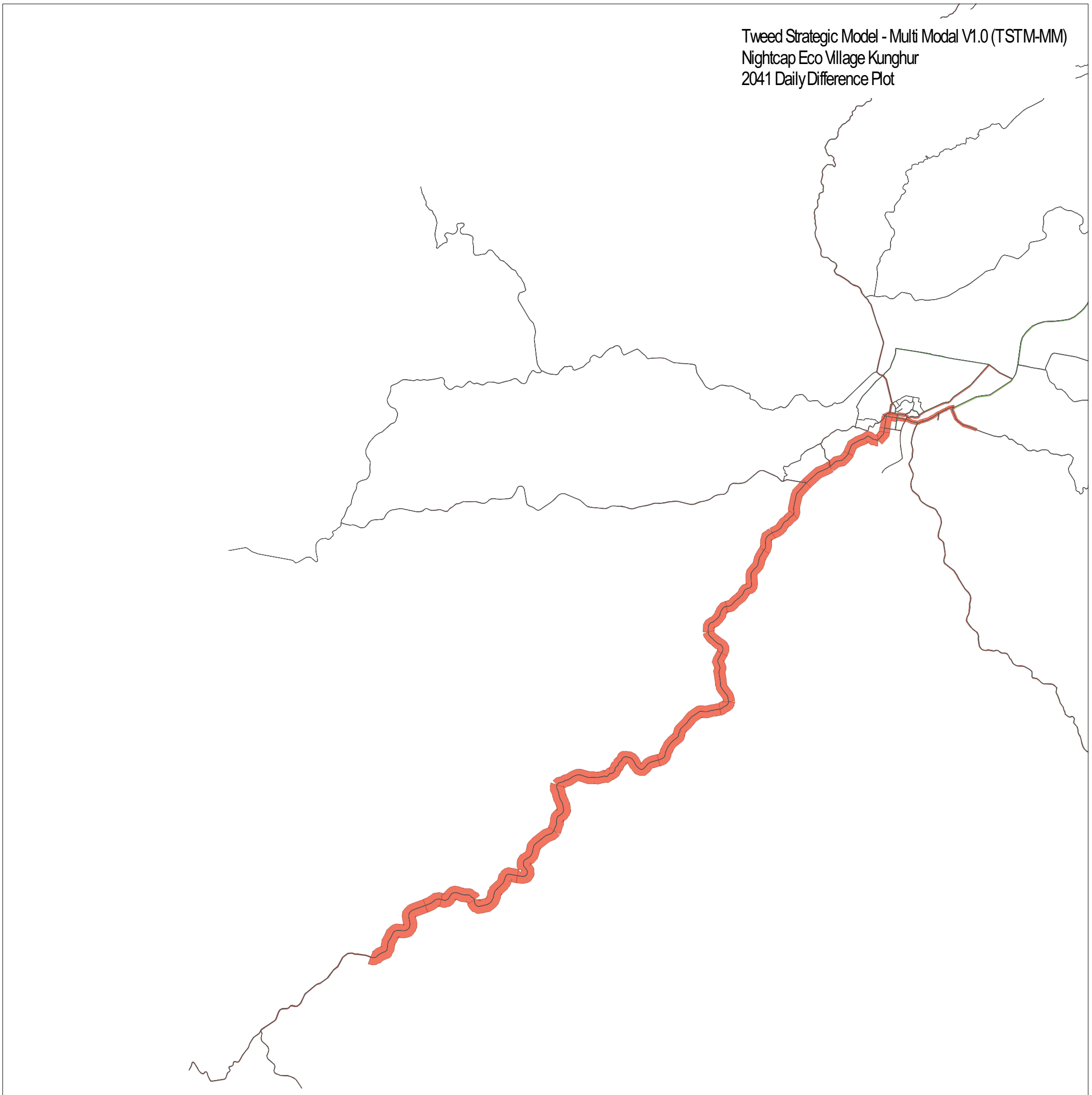
Tweed Strategic Transport Model - Multi Modal V1.0 (TSTM-MM)
Nightcap Eco Village Kunghur
2041 Base - PM Peak (16:00-18:00) Volumes



BITZIOS consulting

Tweed Strategic Model - Multi Modal V1.0 (TSTM-MM)
Nightcap Eco Village Kunghur
2041 Daily Difference Plot

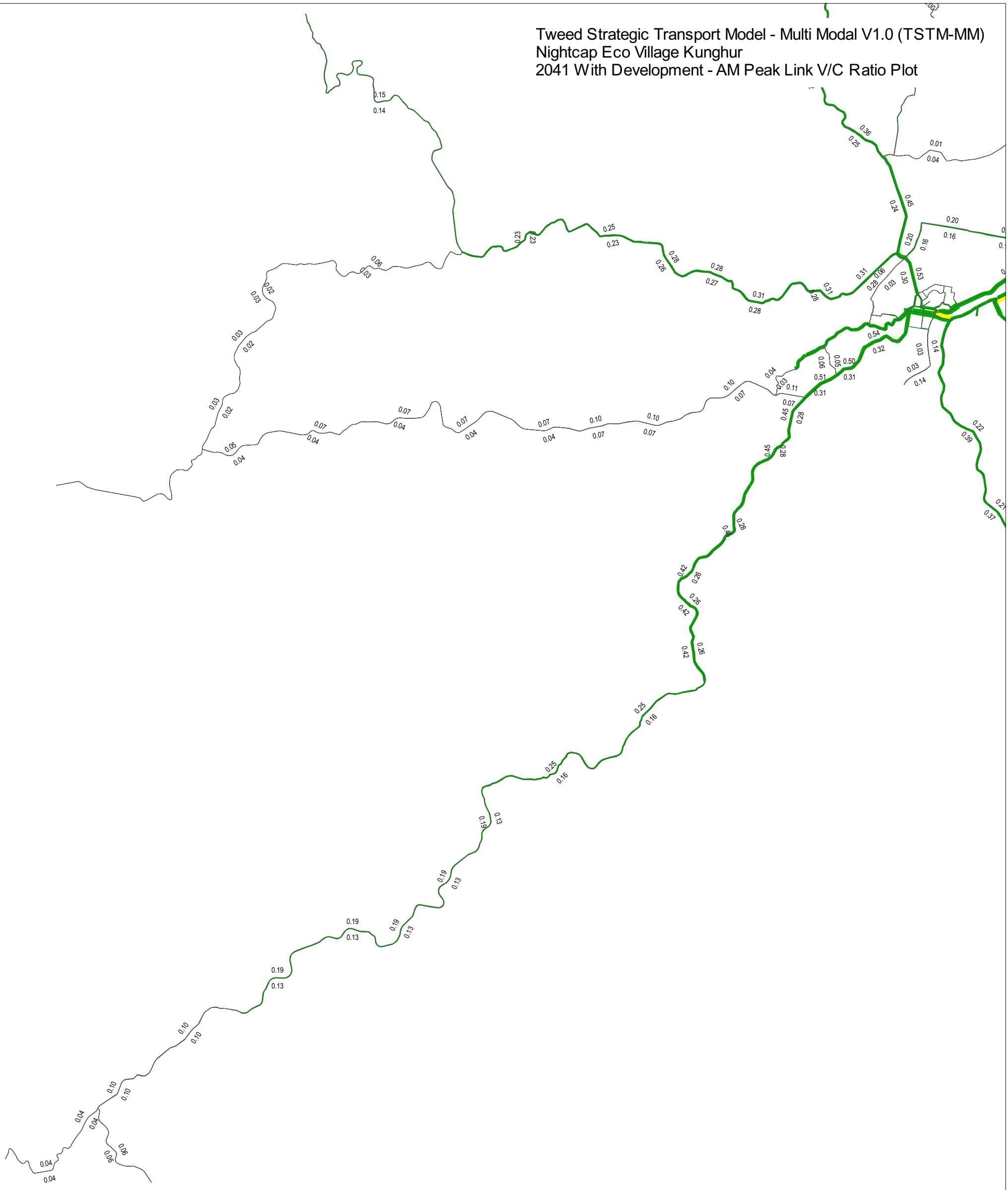


100 200 300 400 500
Auto Volume

Higher in Project
Higher in Base

BITZIOS consulting

Tweed Strategic Transport Model - Multi Modal V1.0 (TSTM-MM)
Nightcap Eco Village Kunghur
2041 With Development - AM Peak Link V/C Ratio Plot



V/C Ratio <0.9
>0.9 & <1.0
>1.0 & <1.5
>1.5 & <2.0
> 2.0

BITZIOS consulting
traffic engineering ▪ transport planning

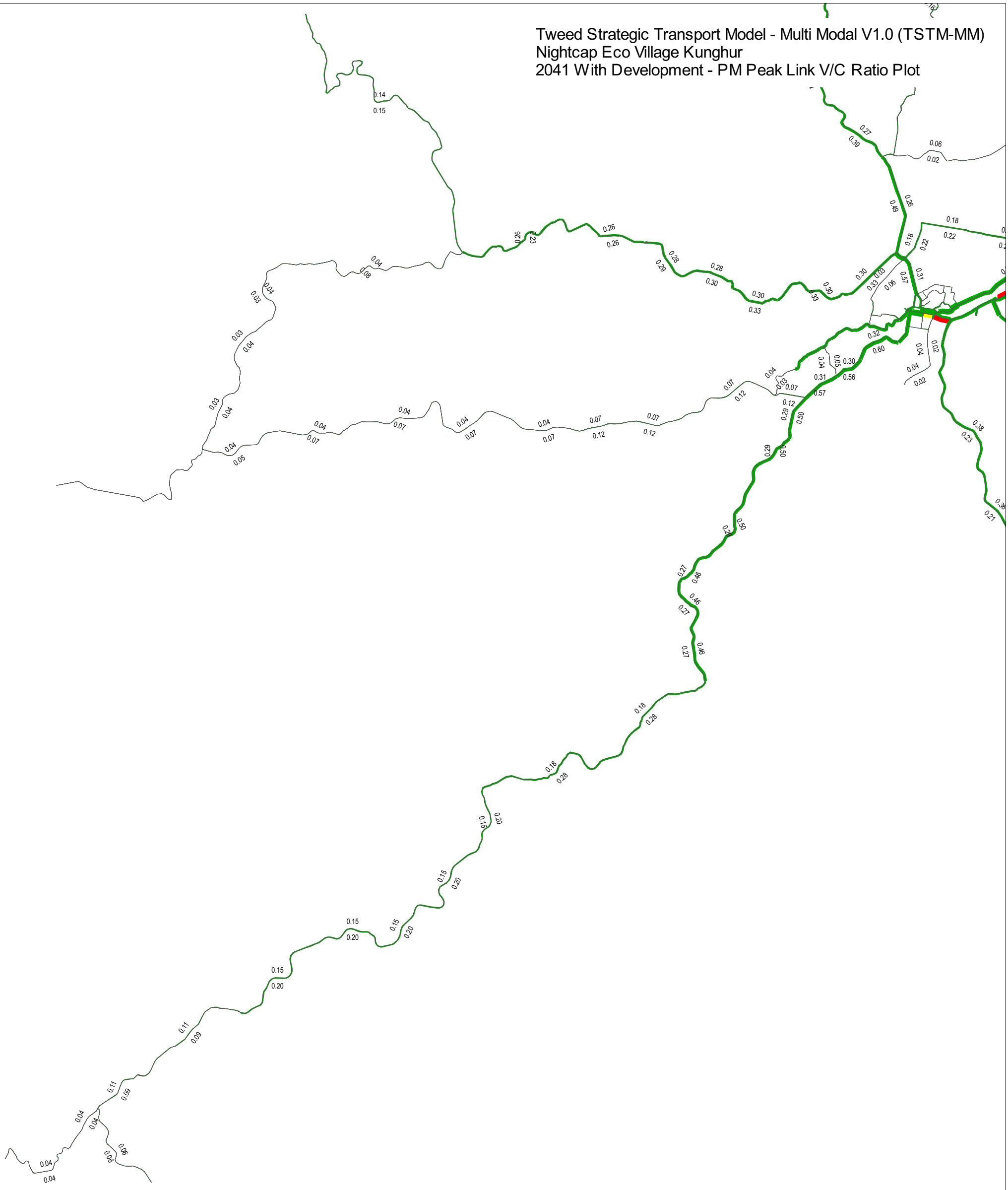
Tweed Strategic Transport Model - Multi Modal V1.0 (TSTM-MM)
Nightcap Eco Village Kunghur
2041 With Development - AM Peak (07:00-09:00) Volumes

BITZIOS consulting

Tweed Strategic Transport Model - Multi Modal V1.0 (TSTM-MM)
Nightcap Eco Village Kunghur
2041 With Development - Daily Volumes

BITZIOS consulting

Tweed Strategic Transport Model - Multi Modal V1.0 (TSTM-MM)
Nightcap Eco Village Kunghur
2041 With Development - PM Peak Link V/C Ratio Plot



V/C Ratio <0.9
>0.9 & <1.0
>1.0 & <1.5
>1.5 & <2.0
> 2.0

BITZIOS consulting
traffic engineering ▪ transport planning

Tweed Strategic Transport Model - Multi Modal V1.0 (TSTM-MM)
Nightcap Eco Village Kunghur
2041 With Development - PM Peak (16:00-18:00) Volumes

BITZIOS consulting

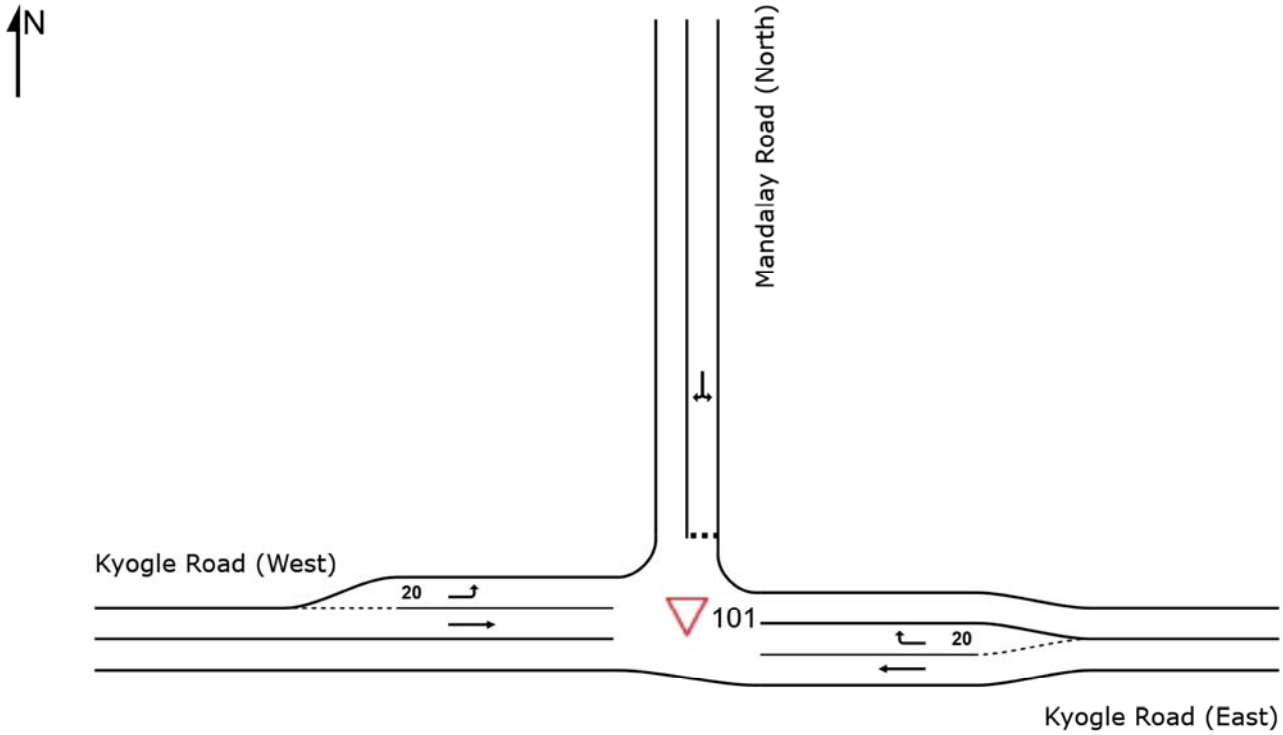
APPENDIX H

SIDRA RESULTS

SITE LAYOUT

Site: 101 [BG 2020 AM]

Mandalay / Kyogle Road
Site Category: (None)
Giveway / Yield (Two-Way)



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Organisation: BITZIOS CONSULTING | Created: Thursday, 5 December 2019 4:53:45 PM
Project: P:\P3971 Nightcap Eco Village Kunghur TIA\Technical Work\Models\P3971.001M Access 1 Mandalay Rd - Kyogle Rd Intersection.sip8

MOVEMENT SUMMARY

Site: 101 [BG 2020 AM]

Mandalay / Kyogle Road
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Kyogle Road (East)												
5	T1	67	0.0	0.035	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
6	R2	2	0.0	0.002	5.7	LOS A	0.0	0.0	0.15	0.55	0.15	52.7
Approach		69	0.0	0.035	0.2	NA	0.0	0.0	0.00	0.02	0.00	59.7
North: Mandalay Road (North)												
7	L2	2	0.0	0.004	5.7	LOS A	0.0	0.1	0.18	0.54	0.18	53.1
9	R2	2	0.0	0.004	6.3	LOS A	0.0	0.1	0.18	0.54	0.18	52.8
Approach		4	0.0	0.004	6.0	LOS A	0.0	0.1	0.18	0.54	0.18	53.0
West: Kyogle Road (West)												
10	L2	2	0.0	0.001	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	53.6
11	T1	63	0.0	0.032	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		65	0.0	0.032	0.2	NA	0.0	0.0	0.00	0.02	0.00	59.8
All Vehicles		139	0.0	0.035	0.4	NA	0.0	0.1	0.01	0.03	0.01	59.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [BG 2020 PM]

Mandalay / Kyogle Road
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Kyogle Road (East)												
5	T1	78	0.0	0.040	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
6	R2	2	0.0	0.002	5.7	LOS A	0.0	0.0	0.18	0.54	0.18	52.7
Approach		80	0.0	0.040	0.2	NA	0.0	0.0	0.00	0.01	0.00	59.8
North: Mandalay Road (North)												
7	L2	2	0.0	0.004	5.8	LOS A	0.0	0.1	0.21	0.54	0.21	53.0
9	R2	2	0.0	0.004	6.4	LOS A	0.0	0.1	0.21	0.54	0.21	52.8
Approach		4	0.0	0.004	6.1	LOS A	0.0	0.1	0.21	0.54	0.21	52.9
West: Kyogle Road (West)												
10	L2	2	0.0	0.001	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	53.6
11	T1	82	0.0	0.042	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		84	0.0	0.042	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.8
All Vehicles		168	0.0	0.042	0.3	NA	0.0	0.1	0.01	0.03	0.01	59.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [BG 2030 AM]

Mandalay / Kyogle Road
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Kyogle Road (East)												
5	T1	86	0.0	0.044	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
6	R2	2	0.0	0.002	5.7	LOS A	0.0	0.0	0.18	0.54	0.18	52.7
Approach		88	0.0	0.044	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.8
North: Mandalay Road (North)												
7	L2	2	0.0	0.004	5.8	LOS A	0.0	0.1	0.21	0.54	0.21	53.0
9	R2	2	0.0	0.004	6.5	LOS A	0.0	0.1	0.21	0.54	0.21	52.8
Approach		4	0.0	0.004	6.2	LOS A	0.0	0.1	0.21	0.54	0.21	52.9
West: Kyogle Road (West)												
10	L2	2	0.0	0.001	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	53.6
11	T1	82	0.0	0.042	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		84	0.0	0.042	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.8
All Vehicles		177	0.0	0.044	0.3	NA	0.0	0.1	0.01	0.03	0.01	59.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [BG 2030 PM]

Mandalay / Kyogle Road
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Kyogle Road (East)												
5	T1	101	0.0	0.052	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
6	R2	2	0.0	0.002	5.8	LOS A	0.0	0.0	0.20	0.54	0.20	52.6
Approach		103	0.0	0.052	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.8
North: Mandalay Road (North)												
7	L2	2	0.0	0.004	5.9	LOS A	0.0	0.1	0.24	0.54	0.24	52.9
9	R2	2	0.0	0.004	6.8	LOS A	0.0	0.1	0.24	0.54	0.24	52.7
Approach		4	0.0	0.004	6.3	LOS A	0.0	0.1	0.24	0.54	0.24	52.8
West: Kyogle Road (West)												
10	L2	2	0.0	0.001	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	53.6
11	T1	105	0.0	0.054	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		107	0.0	0.054	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.9
All Vehicles		215	0.0	0.054	0.2	NA	0.0	0.1	0.01	0.02	0.01	59.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [DES 2020 AM]

Mandalay / Kyogle Road
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Kyogle Road (East)												
5	T1	126	0.0	0.065	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
6	R2	11	0.0	0.009	6.1	LOS A	0.0	0.2	0.29	0.56	0.29	52.4
Approach		137	0.0	0.065	0.5	NA	0.0	0.2	0.02	0.04	0.02	59.3
North: Mandalay Road (North)												
7	L2	25	0.0	0.064	6.2	LOS A	0.2	1.7	0.35	0.61	0.35	52.4
9	R2	31	0.0	0.064	7.9	LOS A	0.2	1.7	0.35	0.61	0.35	52.2
Approach		56	0.0	0.064	7.1	LOS A	0.2	1.7	0.35	0.61	0.35	52.3
West: Kyogle Road (West)												
10	L2	11	0.0	0.006	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	53.6
11	T1	180	0.0	0.092	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		191	0.0	0.092	0.3	NA	0.0	0.0	0.00	0.03	0.00	59.6
All Vehicles		383	0.0	0.092	1.4	NA	0.2	1.7	0.06	0.12	0.06	58.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [DES 2020 PM]

Mandalay / Kyogle Road
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Kyogle Road (East)												
5	T1	188	0.0	0.097	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
6	R2	24	0.0	0.020	6.1	LOS A	0.1	0.5	0.29	0.57	0.29	52.4
Approach		213	0.0	0.097	0.7	NA	0.1	0.5	0.03	0.07	0.03	59.0
North: Mandalay Road (North)												
7	L2	16	0.0	0.042	6.2	LOS A	0.2	1.1	0.35	0.61	0.35	52.2
9	R2	19	0.0	0.042	8.4	LOS A	0.2	1.1	0.35	0.61	0.35	52.0
Approach		35	0.0	0.042	7.4	LOS A	0.2	1.1	0.35	0.61	0.35	52.1
West: Kyogle Road (West)												
10	L2	24	0.0	0.013	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	53.6
11	T1	164	0.0	0.084	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		188	0.0	0.084	0.7	NA	0.0	0.0	0.00	0.07	0.00	59.1
All Vehicles		436	0.0	0.097	1.2	NA	0.2	1.1	0.04	0.11	0.04	58.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [DES 2030 AM]

Mandalay / Kyogle Road
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Kyogle Road (East)												
5	T1	146	0.0	0.076	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
6	R2	11	0.0	0.009	6.2	LOS A	0.0	0.2	0.30	0.56	0.30	52.3
Approach		157	0.0	0.076	0.4	NA	0.0	0.2	0.02	0.04	0.02	59.4
North: Mandalay Road (North)												
7	L2	25	0.0	0.067	6.3	LOS A	0.3	1.8	0.38	0.62	0.38	52.2
9	R2	31	0.0	0.067	8.2	LOS A	0.3	1.8	0.38	0.62	0.38	52.0
Approach		56	0.0	0.067	7.4	LOS A	0.3	1.8	0.38	0.62	0.38	52.1
West: Kyogle Road (West)												
10	L2	11	0.0	0.006	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	53.6
11	T1	199	0.0	0.102	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		209	0.0	0.102	0.3	NA	0.0	0.0	0.00	0.03	0.00	59.6
All Vehicles		422	0.0	0.102	1.3	NA	0.3	1.8	0.06	0.11	0.06	58.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [DES 2030 PM]

Mandalay / Kyogle Road
Site Category: (None)
Giveway / Yield (Two-Way)

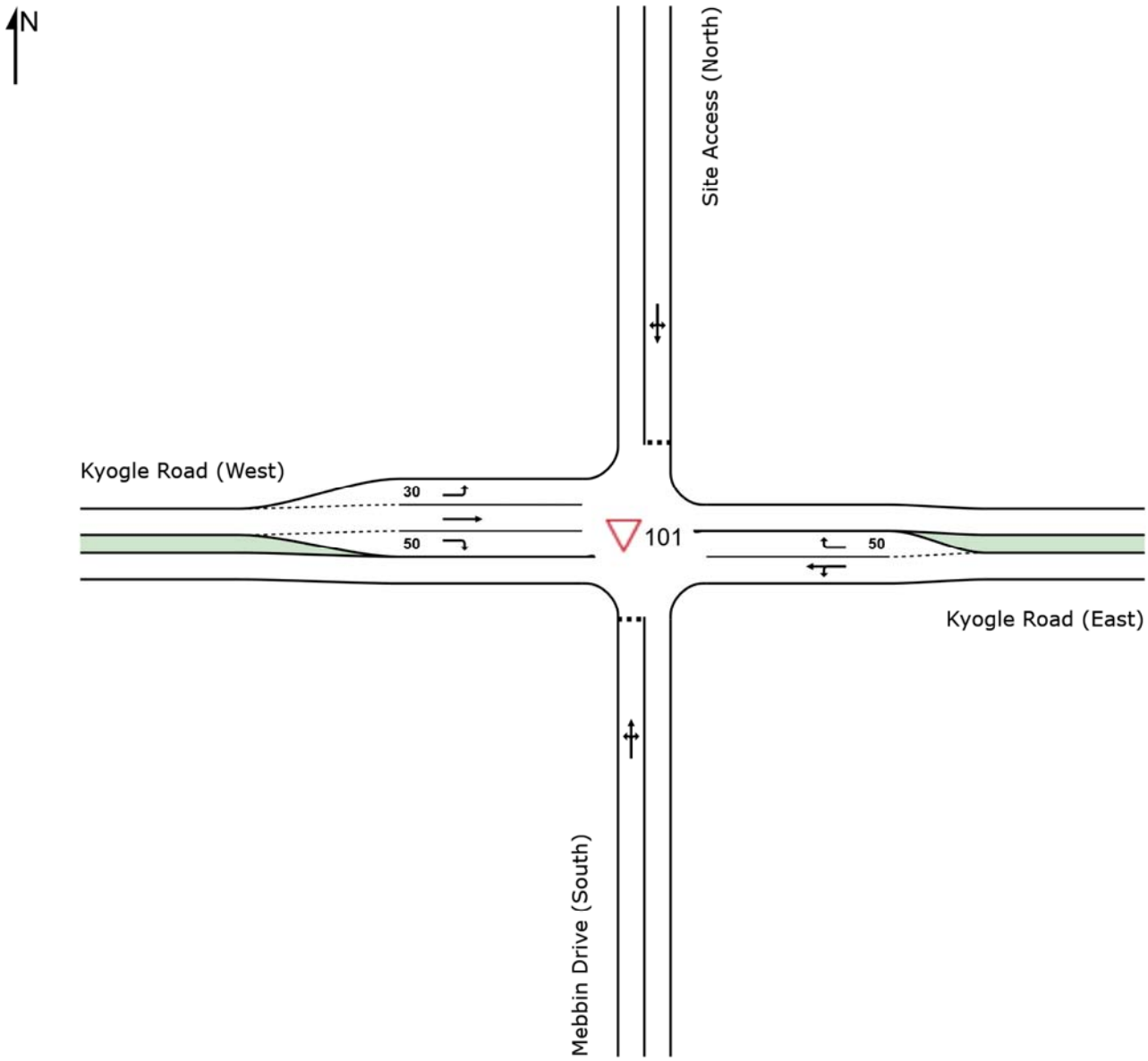
Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Kyogle Road (East)												
5	T1	212	0.0	0.109	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
6	R2	24	0.0	0.021	6.2	LOS A	0.1	0.6	0.31	0.58	0.31	52.3
Approach		236	0.0	0.109	0.7	NA	0.1	0.6	0.03	0.06	0.03	59.1
North: Mandalay Road (North)												
7	L2	16	0.0	0.045	6.3	LOS A	0.2	1.1	0.38	0.62	0.38	52.0
9	R2	19	0.0	0.045	8.9	LOS A	0.2	1.1	0.38	0.62	0.38	51.8
Approach		35	0.0	0.045	7.7	LOS A	0.2	1.1	0.38	0.62	0.38	51.9
West: Kyogle Road (West)												
10	L2	24	0.0	0.013	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	53.6
11	T1	188	0.0	0.097	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		213	0.0	0.097	0.6	NA	0.0	0.0	0.00	0.07	0.00	59.2
All Vehicles		483	0.0	0.109	1.2	NA	0.2	1.1	0.04	0.10	0.04	58.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

Site: 101 [BG 2020 AM]

Site Access / Kyogle Road
Site Category: (None)
Giveway / Yield (Two-Way)



MOVEMENT SUMMARY

Site: 101 [BG 2020 AM]

Site Access / Kyogle Road
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Mebbin Drive (South)												
1	L2	1	0.0	0.004	5.8	LOS A	0.0	0.1	0.22	0.52	0.22	51.3
2	T1	1	0.0	0.004	5.7	LOS A	0.0	0.1	0.22	0.52	0.22	51.8
3	R2	1	0.0	0.004	6.7	LOS A	0.0	0.1	0.22	0.52	0.22	51.0
Approach		3	0.0	0.004	6.0	LOS A	0.0	0.1	0.22	0.52	0.22	51.3
East: Kyogle Road (East)												
4	L2	1	0.0	0.035	5.5	LOS A	0.0	0.0	0.00	0.01	0.00	57.7
5	T1	66	0.0	0.035	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.9
6	R2	3	0.0	0.002	5.7	LOS A	0.0	0.1	0.16	0.55	0.16	52.7
Approach		71	0.0	0.035	0.3	NA	0.0	0.1	0.01	0.03	0.01	59.5
North: Site Access (North)												
7	L2	1	0.0	0.004	5.8	LOS A	0.0	0.1	0.21	0.52	0.21	53.1
8	T1	1	0.0	0.004	5.7	LOS A	0.0	0.1	0.21	0.52	0.21	51.8
9	R2	1	0.0	0.004	6.7	LOS A	0.0	0.1	0.21	0.52	0.21	53.2
Approach		3	0.0	0.004	6.0	LOS A	0.0	0.1	0.21	0.52	0.21	52.8
West: Kyogle Road (West)												
10	L2	3	0.0	0.002	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	53.6
11	T1	65	0.0	0.033	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
12	R2	1	0.0	0.001	5.6	LOS A	0.0	0.0	0.16	0.54	0.16	50.7
Approach		69	0.0	0.033	0.3	NA	0.0	0.0	0.00	0.03	0.00	59.5
All Vehicles		146	0.0	0.035	0.6	NA	0.0	0.1	0.01	0.05	0.01	59.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [BG 2020 PM]

Mandalay / Kyogle Road
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Mebbin Drive (South)												
1	L2	1	0.0	0.004	5.8	LOS A	0.0	0.1	0.24	0.52	0.24	51.1
2	T1	1	0.0	0.004	5.9	LOS A	0.0	0.1	0.24	0.52	0.24	51.7
3	R2	1	0.0	0.004	6.9	LOS A	0.0	0.1	0.24	0.52	0.24	50.9
Approach		3	0.0	0.004	6.2	LOS A	0.0	0.1	0.24	0.52	0.24	51.2
East: Kyogle Road (East)												
4	L2	1	0.0	0.041	5.5	LOS A	0.0	0.0	0.00	0.01	0.00	57.7
5	T1	78	0.0	0.041	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.9
6	R2	1	0.0	0.001	5.7	LOS A	0.0	0.0	0.17	0.54	0.17	52.7
Approach		80	0.0	0.041	0.2	NA	0.0	0.0	0.00	0.02	0.00	59.8
North: Site Access (North)												
7	L2	3	0.0	0.009	5.8	LOS A	0.0	0.2	0.23	0.54	0.23	53.0
8	T1	1	0.0	0.009	5.9	LOS A	0.0	0.2	0.23	0.54	0.23	51.6
9	R2	3	0.0	0.009	7.0	LOS A	0.0	0.2	0.23	0.54	0.23	53.0
Approach		7	0.0	0.009	6.3	LOS A	0.0	0.2	0.23	0.54	0.23	52.9
West: Kyogle Road (West)												
10	L2	1	0.0	0.001	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	53.6
11	T1	81	0.0	0.042	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
12	R2	1	0.0	0.001	5.6	LOS A	0.0	0.0	0.17	0.54	0.17	50.6
Approach		83	0.0	0.042	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.8
All Vehicles		174	0.0	0.042	0.5	NA	0.0	0.2	0.02	0.05	0.02	59.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [BG 2030 AM]

Mandalay / Kyogle Road
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Mebbin Drive (South)												
1	L2	1	0.0	0.004	5.8	LOS A	0.0	0.1	0.25	0.52	0.25	51.1
2	T1	1	0.0	0.004	6.0	LOS A	0.0	0.1	0.25	0.52	0.25	51.6
3	R2	1	0.0	0.004	7.0	LOS A	0.0	0.1	0.25	0.52	0.25	50.8
Approach		3	0.0	0.004	6.3	LOS A	0.0	0.1	0.25	0.52	0.25	51.2
East: Kyogle Road (East)												
4	L2	1	0.0	0.044	5.5	LOS A	0.0	0.0	0.00	0.01	0.00	57.8
5	T1	85	0.0	0.044	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.9
6	R2	3	0.0	0.002	5.7	LOS A	0.0	0.1	0.18	0.55	0.18	52.6
Approach		89	0.0	0.044	0.3	NA	0.0	0.1	0.01	0.03	0.01	59.6
North: Site Access (North)												
7	L2	1	0.0	0.004	5.8	LOS A	0.0	0.1	0.25	0.52	0.25	53.0
8	T1	1	0.0	0.004	6.0	LOS A	0.0	0.1	0.25	0.52	0.25	51.6
9	R2	1	0.0	0.004	7.1	LOS A	0.0	0.1	0.25	0.52	0.25	53.1
Approach		3	0.0	0.004	6.3	LOS A	0.0	0.1	0.25	0.52	0.25	52.7
West: Kyogle Road (West)												
10	L2	3	0.0	0.002	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	53.6
11	T1	84	0.0	0.043	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
12	R2	1	0.0	0.001	5.7	LOS A	0.0	0.0	0.18	0.54	0.18	50.6
Approach		88	0.0	0.043	0.3	NA	0.0	0.0	0.00	0.03	0.00	59.6
All Vehicles		184	0.0	0.044	0.5	NA	0.0	0.1	0.01	0.04	0.01	59.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [BG 2030 PM]

Mandalay / Kyogle Road
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Mebbin Drive (South)												
1	L2	1	0.0	0.004	5.9	LOS A	0.0	0.1	0.28	0.53	0.28	50.9
2	T1	1	0.0	0.004	6.3	LOS A	0.0	0.1	0.28	0.53	0.28	51.5
3	R2	1	0.0	0.004	7.4	LOS A	0.0	0.1	0.28	0.53	0.28	50.6
Approach		3	0.0	0.004	6.5	LOS A	0.0	0.1	0.28	0.53	0.28	51.0
East: Kyogle Road (East)												
4	L2	1	0.0	0.052	5.5	LOS A	0.0	0.0	0.00	0.01	0.00	57.8
5	T1	101	0.0	0.052	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.9
6	R2	1	0.0	0.001	5.8	LOS A	0.0	0.0	0.20	0.54	0.20	52.6
Approach		103	0.0	0.052	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.8
North: Site Access (North)												
7	L2	3	0.0	0.009	5.9	LOS A	0.0	0.2	0.27	0.54	0.27	52.8
8	T1	1	0.0	0.009	6.3	LOS A	0.0	0.2	0.27	0.54	0.27	51.4
9	R2	3	0.0	0.009	7.5	LOS A	0.0	0.2	0.27	0.54	0.27	52.8
Approach		7	0.0	0.009	6.6	LOS A	0.0	0.2	0.27	0.54	0.27	52.7
West: Kyogle Road (West)												
10	L2	1	0.0	0.001	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	53.6
11	T1	104	0.0	0.053	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
12	R2	1	0.0	0.001	5.7	LOS A	0.0	0.0	0.20	0.53	0.20	50.5
Approach		106	0.0	0.053	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.8
All Vehicles		220	0.0	0.053	0.4	NA	0.0	0.2	0.01	0.04	0.01	59.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [DES 2020 AM]

Mandalay / Kyogle Road
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Mebbin Drive (South)												
1	L2	1	0.0	0.005	5.9	LOS A	0.0	0.1	0.32	0.55	0.32	50.1
2	T1	1	0.0	0.005	7.3	LOS A	0.0	0.1	0.32	0.55	0.32	50.6
3	R2	1	0.0	0.005	9.0	LOS A	0.0	0.1	0.32	0.55	0.32	49.8
Approach		3	0.0	0.005	7.4	LOS A	0.0	0.1	0.32	0.55	0.32	50.2
East: Kyogle Road (East)												
4	L2	1	0.0	0.054	5.5	LOS A	0.0	0.0	0.00	0.01	0.00	57.8
5	T1	103	0.0	0.054	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.9
6	R2	54	0.0	0.043	6.0	LOS A	0.2	1.2	0.26	0.57	0.26	52.4
Approach		158	0.0	0.054	2.1	NA	0.2	1.2	0.09	0.20	0.09	57.1
North: Site Access (North)												
7	L2	85	0.0	0.247	6.0	LOS A	1.0	7.1	0.33	0.62	0.33	51.9
8	T1	1	0.0	0.247	7.8	LOS A	1.0	7.1	0.33	0.62	0.33	50.3
9	R2	98	0.0	0.247	9.3	LOS A	1.0	7.1	0.33	0.62	0.33	52.0
Approach		184	0.0	0.247	7.8	LOS A	1.0	7.1	0.33	0.62	0.33	52.0
West: Kyogle Road (West)												
10	L2	54	0.0	0.029	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	53.6
11	T1	104	0.0	0.053	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
12	R2	1	0.0	0.001	5.7	LOS A	0.0	0.0	0.20	0.53	0.20	50.5
Approach		159	0.0	0.053	1.9	NA	0.0	0.0	0.00	0.20	0.00	57.6
All Vehicles		504	0.0	0.247	4.1	NA	1.0	7.1	0.15	0.36	0.15	55.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [DES 2020 PM]

Mandalay / Kyogle Road
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Mebbin Drive (South)												
1	L2	1	0.0	0.005	6.0	LOS A	0.0	0.1	0.35	0.56	0.35	49.6
2	T1	1	0.0	0.005	8.3	LOS A	0.0	0.1	0.35	0.56	0.35	50.1
3	R2	1	0.0	0.005	9.6	LOS A	0.0	0.1	0.35	0.56	0.35	49.3
Approach		3	0.0	0.005	8.0	LOS A	0.0	0.1	0.35	0.56	0.35	49.7
East: Kyogle Road (East)												
4	L2	1	0.0	0.063	5.5	LOS A	0.0	0.0	0.00	0.01	0.00	57.8
5	T1	121	0.0	0.063	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.9
6	R2	81	0.0	0.068	6.2	LOS A	0.3	1.9	0.31	0.59	0.31	52.3
Approach		203	0.0	0.068	2.5	NA	0.3	1.9	0.12	0.24	0.12	56.6
North: Site Access (North)												
7	L2	68	0.0	0.209	6.1	LOS A	0.8	5.8	0.35	0.64	0.35	51.6
8	T1	1	0.0	0.209	8.7	LOS A	0.8	5.8	0.35	0.64	0.35	49.8
9	R2	75	0.0	0.209	10.3	LOS B	0.8	5.8	0.35	0.64	0.35	51.6
Approach		144	0.0	0.209	8.3	LOS A	0.8	5.8	0.35	0.64	0.35	51.6
West: Kyogle Road (West)												
10	L2	81	0.0	0.044	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	53.6
11	T1	120	0.0	0.062	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
12	R2	1	0.0	0.001	5.8	LOS A	0.0	0.0	0.22	0.53	0.22	50.5
Approach		202	0.0	0.062	2.3	NA	0.0	0.0	0.00	0.23	0.00	57.2
All Vehicles		553	0.0	0.209	4.0	NA	0.8	5.8	0.14	0.34	0.14	55.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [DES 2030 AM]

Mandalay / Kyogle Road
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Mebbin Drive (South)												
1	L2	1	0.0	0.005	6.0	LOS A	0.0	0.1	0.35	0.56	0.35	49.8
2	T1	1	0.0	0.005	7.7	LOS A	0.0	0.1	0.35	0.56	0.35	50.3
3	R2	1	0.0	0.005	9.5	LOS A	0.0	0.1	0.35	0.56	0.35	49.5
Approach		3	0.0	0.005	7.7	LOS A	0.0	0.1	0.35	0.56	0.35	49.9
East: Kyogle Road (East)												
4	L2	1	0.0	0.064	5.5	LOS A	0.0	0.0	0.00	0.01	0.00	57.8
5	T1	122	0.0	0.064	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	59.9
6	R2	54	0.0	0.044	6.1	LOS A	0.2	1.2	0.28	0.58	0.28	52.4
Approach		177	0.0	0.064	1.9	NA	0.2	1.2	0.08	0.18	0.08	57.4
North: Site Access (North)												
7	L2	85	0.0	0.259	6.1	LOS A	1.1	7.5	0.37	0.64	0.37	51.7
8	T1	1	0.0	0.259	8.4	LOS A	1.1	7.5	0.37	0.64	0.37	49.9
9	R2	98	0.0	0.259	9.9	LOS A	1.1	7.5	0.37	0.64	0.37	51.7
Approach		184	0.0	0.259	8.2	LOS A	1.1	7.5	0.37	0.64	0.37	51.7
West: Kyogle Road (West)												
10	L2	54	0.0	0.029	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	53.6
11	T1	123	0.0	0.063	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
12	R2	1	0.0	0.001	5.8	LOS A	0.0	0.0	0.22	0.53	0.22	50.5
Approach		178	0.0	0.063	1.7	NA	0.0	0.0	0.00	0.18	0.00	57.9
All Vehicles		542	0.0	0.259	4.0	NA	1.1	7.5	0.15	0.34	0.15	55.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [DES 2030 PM]

Mandalay / Kyogle Road
Site Category: (None)
Giveway / Yield (Two-Way)

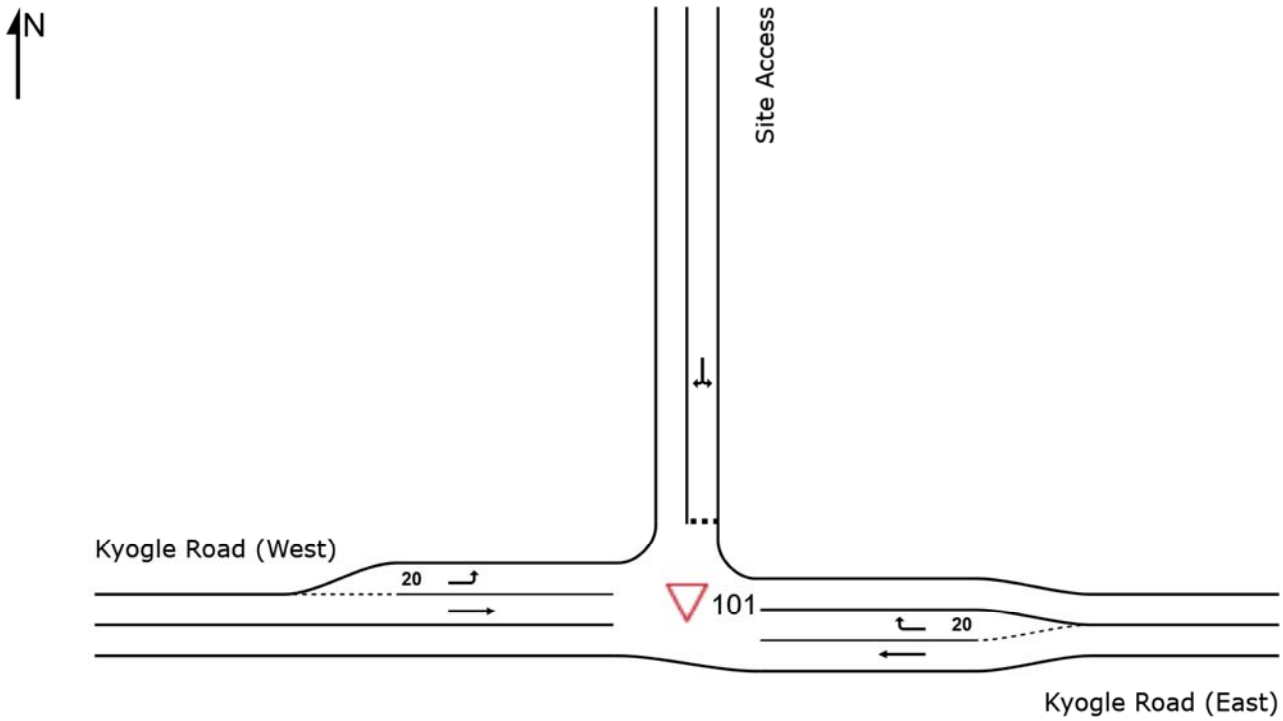
Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Mebbin Drive (South)												
1	L2	1	0.0	0.005	6.0	LOS A	0.0	0.1	0.39	0.57	0.39	49.2
2	T1	1	0.0	0.005	8.9	LOS A	0.0	0.1	0.39	0.57	0.39	49.7
3	R2	1	0.0	0.005	10.3	LOS B	0.0	0.1	0.39	0.57	0.39	48.9
Approach		3	0.0	0.005	8.4	LOS A	0.0	0.1	0.39	0.57	0.39	49.3
East: Kyogle Road (East)												
4	L2	1	0.0	0.075	5.5	LOS A	0.0	0.0	0.00	0.00	0.00	57.8
5	T1	144	0.0	0.075	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
6	R2	81	0.0	0.070	6.3	LOS A	0.3	2.0	0.32	0.60	0.32	52.2
Approach		226	0.0	0.075	2.3	NA	0.3	2.0	0.12	0.22	0.12	56.9
North: Site Access (North)												
7	L2	68	0.0	0.223	6.2	LOS A	0.9	6.1	0.39	0.66	0.39	51.2
8	T1	1	0.0	0.223	9.4	LOS A	0.9	6.1	0.39	0.66	0.39	49.4
9	R2	75	0.0	0.223	11.2	LOS B	0.9	6.1	0.39	0.66	0.39	51.3
Approach		144	0.0	0.223	8.8	LOS A	0.9	6.1	0.39	0.66	0.39	51.2
West: Kyogle Road (West)												
10	L2	81	0.0	0.044	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	53.6
11	T1	143	0.0	0.073	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
12	R2	1	0.0	0.001	5.8	LOS A	0.0	0.0	0.24	0.53	0.24	50.4
Approach		225	0.0	0.073	2.0	NA	0.0	0.0	0.00	0.21	0.00	57.5
All Vehicles		599	0.0	0.223	3.8	NA	0.9	6.1	0.14	0.32	0.14	55.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

SITE LAYOUT

Site: 101 [BG 2020 AM]

Site Access / Kyogle Road
Site Category: (None)
Giveway / Yield (Two-Way)



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MOVEMENT SUMMARY

Site: 101 [BG 2020 AM]

Site Access / Kyogle Road
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Kyogle Road (East)												
5	T1	67	0.0	0.035	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
6	R2	1	0.0	0.001	4.9	LOS A	0.0	0.0	0.16	0.53	0.16	49.3
Approach		68	0.0	0.035	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.4
North: Site Access												
7	L2	1	0.0	0.002	5.8	LOS A	0.0	0.1	0.19	0.53	0.19	47.9
9	R2	1	0.0	0.002	6.3	LOS A	0.0	0.1	0.19	0.53	0.19	48.2
Approach		2	0.0	0.002	6.0	LOS A	0.0	0.1	0.19	0.53	0.19	48.0
West: Kyogle Road (West)												
10	L2	1	0.0	0.001	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	50.2
11	T1	68	0.0	0.035	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		69	0.0	0.035	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.4
All Vehicles		140	0.0	0.035	0.2	NA	0.0	0.1	0.00	0.02	0.00	58.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [BG 2020 PM]

Site Access / Kyogle Road
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Kyogle Road (East)												
5	T1	85	0.0	0.044	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
6	R2	1	0.0	0.001	4.9	LOS A	0.0	0.0	0.17	0.53	0.17	49.3
Approach		86	0.0	0.044	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.5
North: Site Access												
7	L2	1	0.0	0.002	5.8	LOS A	0.0	0.1	0.20	0.53	0.20	47.8
9	R2	1	0.0	0.002	6.5	LOS A	0.0	0.1	0.20	0.53	0.20	48.1
Approach		2	0.0	0.002	6.1	LOS A	0.0	0.1	0.20	0.53	0.20	48.0
West: Kyogle Road (West)												
10	L2	1	0.0	0.001	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	50.2
11	T1	79	0.0	0.040	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		80	0.0	0.040	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.5
All Vehicles		168	0.0	0.044	0.1	NA	0.0	0.1	0.00	0.01	0.00	58.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
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Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [BG 2030 AM]

Site Access / Kyogle Road
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Kyogle Road (East)												
5	T1	87	0.0	0.045	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
6	R2	1	0.0	0.001	4.9	LOS A	0.0	0.0	0.18	0.53	0.18	49.2
Approach		88	0.0	0.045	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.5
North: Site Access (North)												
7	L2	1	0.0	0.002	5.8	LOS A	0.0	0.1	0.22	0.53	0.22	47.8
9	R2	1	0.0	0.002	6.5	LOS A	0.0	0.1	0.22	0.53	0.22	48.1
Approach		2	0.0	0.002	6.2	LOS A	0.0	0.1	0.22	0.53	0.22	47.9
West: Kyogle Road (West)												
10	L2	1	0.0	0.001	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	50.2
11	T1	87	0.0	0.045	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		88	0.0	0.045	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.5
All Vehicles		179	0.0	0.045	0.1	NA	0.0	0.1	0.00	0.01	0.00	59.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [BG 2030 PM]

Site Access / Kyogle Road
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Kyogle Road (East)												
5	T1	109	0.0	0.056	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
6	R2	1	0.0	0.001	5.0	LOS A	0.0	0.0	0.20	0.53	0.20	49.2
Approach		111	0.0	0.056	0.0	NA	0.0	0.0	0.00	0.01	0.00	59.6
North: Site Access (North)												
7	L2	1	0.0	0.002	5.9	LOS A	0.0	0.1	0.24	0.53	0.24	47.7
9	R2	1	0.0	0.002	6.8	LOS A	0.0	0.1	0.24	0.53	0.24	48.0
Approach		2	0.0	0.002	6.3	LOS A	0.0	0.1	0.24	0.53	0.24	47.8
West: Kyogle Road (West)												
10	L2	1	0.0	0.001	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	50.2
11	T1	102	0.0	0.052	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		103	0.0	0.052	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.6
All Vehicles		216	0.0	0.056	0.1	NA	0.0	0.1	0.00	0.01	0.00	59.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [DES 2020 AM]

Site Access / Kyogle Road
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Kyogle Road (East)												
5	T1	194	0.0	0.100	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
6	R2	8	0.0	0.007	5.1	LOS A	0.0	0.2	0.23	0.54	0.23	49.0
Approach		202	0.0	0.100	0.2	NA	0.0	0.2	0.01	0.02	0.01	58.4
North: Mandalay Road (North)												
7	L2	32	0.0	0.081	6.0	LOS A	0.3	2.1	0.31	0.60	0.31	47.0
9	R2	39	0.0	0.081	8.0	LOS A	0.3	2.1	0.31	0.60	0.31	47.3
Approach		71	0.0	0.081	7.1	LOS A	0.3	2.1	0.31	0.60	0.31	47.2
West: Kyogle Road (West)												
10	L2	8	0.0	0.005	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	50.2
11	T1	126	0.0	0.065	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		135	0.0	0.065	0.3	NA	0.0	0.0	0.00	0.04	0.00	57.9
All Vehicles		407	0.0	0.100	1.5	NA	0.3	2.1	0.06	0.13	0.06	53.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [DES 2020 PM]

Site Access / Kyogle Road
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Kyogle Road (East)												
5	T1	171	0.0	0.094	0.2	LOS A	0.2	1.7	0.11	0.09	0.11	54.7
6	R2	29	0.0	0.094	5.6	LOS A	0.2	1.7	0.14	0.11	0.14	54.2
Approach		200	0.0	0.094	1.0	NA	0.2	1.7	0.11	0.09	0.11	54.6
North: Site Access (North)												
7	L2	18	0.0	0.048	6.2	LOS A	0.2	1.2	0.37	0.61	0.37	46.6
9	R2	21	0.0	0.048	8.5	LOS A	0.2	1.2	0.37	0.61	0.37	47.0
Approach		39	0.0	0.048	7.5	LOS A	0.2	1.2	0.37	0.61	0.37	46.8
West: Kyogle Road (West)												
10	L2	29	0.0	0.016	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	50.2
11	T1	182	0.0	0.093	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		212	0.0	0.093	0.8	NA	0.0	0.0	0.00	0.08	0.00	56.1
All Vehicles		451	0.0	0.094	1.4	NA	0.2	1.7	0.08	0.13	0.08	53.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
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NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [DES 2030 AM]

Site Access / Kyogle Road
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Kyogle Road (East)												
5	T1	213	0.0	0.109	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
6	R2	8	0.0	0.007	5.2	LOS A	0.0	0.2	0.25	0.54	0.25	49.0
Approach		221	0.0	0.109	0.2	NA	0.0	0.2	0.01	0.02	0.01	58.5
North: Site Access (North)												
7	L2	32	0.0	0.084	6.1	LOS A	0.3	2.2	0.34	0.62	0.34	46.7
9	R2	39	0.0	0.084	8.4	LOS A	0.3	2.2	0.34	0.62	0.34	47.0
Approach		71	0.0	0.084	7.4	LOS A	0.3	2.2	0.34	0.62	0.34	46.9
West: Kyogle Road (West)												
10	L2	8	0.0	0.005	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	50.2
11	T1	145	0.0	0.074	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		154	0.0	0.074	0.3	NA	0.0	0.0	0.00	0.03	0.00	58.1
All Vehicles		445	0.0	0.109	1.4	NA	0.3	2.2	0.06	0.12	0.06	53.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
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SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [DES 2030 PM]

Site Access / Kyogle Road
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
East: Kyogle Road (East)												
5	T1	196	0.0	0.101	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
6	R2	29	0.0	0.026	5.6	LOS A	0.1	0.7	0.32	0.58	0.32	48.7
Approach		225	0.0	0.101	0.7	NA	0.1	0.7	0.04	0.08	0.04	55.8
North: Site Access (North)												
7	L2	18	0.0	0.051	6.3	LOS A	0.2	1.3	0.39	0.63	0.39	46.3
9	R2	21	0.0	0.051	9.0	LOS A	0.2	1.3	0.39	0.63	0.39	46.6
Approach		39	0.0	0.051	7.8	LOS A	0.2	1.3	0.39	0.63	0.39	46.5
West: Kyogle Road (West)												
10	L2	29	0.0	0.016	5.5	LOS A	0.0	0.0	0.00	0.58	0.00	50.2
11	T1	205	0.0	0.105	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
Approach		235	0.0	0.105	0.7	NA	0.0	0.0	0.00	0.07	0.00	56.3
All Vehicles		499	0.0	0.105	1.3	NA	0.2	1.3	0.05	0.12	0.05	54.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
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